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## **“Prostitution” and Genito-Infectious Disease Control**

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THE spread of gonorrhea and syphilis, and any other genito-infectious disease, depends, ultimately, upon sexual *promiscuity*. Exclusive of gonococcal ophthalmia neonatorum, gonococcal infections are acquired through sexual intercourse, the exceptions being so rare as to be medical curiosities. Probably 95 per cent of all acquired (as distinguished from congenital) infections with syphilis are the result of infective sexual contacts. All infections with any genito-infectious disease, no matter how individually “innocent,” may be traced back to an *ultimate* source in sexual promiscuity. Conversely, if there were no sexual *promiscuity*, the genito-infections would soon cease to exist.

A people may become heavily infected with genito-infectious disease because it is generally promiscuous. There may be a number of conditions which contribute to this promiscuity, ranging all the way from lack of social and economic advantage to variations in traditional sexual conduct, that is, different “moral” codes. Or, a people may become widely infected because a segment of the population is excessively promiscuous, as in the presence of tolerated prostitution, and the remainder is exposed to the infections of this segment through marriage and through premarital and other mildly promiscuous sexual activity. There may be all degrees and combinations of these two extremes, and where “prostitution” merges into simple promiscuity cannot be clearly defined. Public attention is likely to be focused upon that part of sexual promiscuity which, known

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as prostitution, is obvious and can be located; even though it may not be easy to prove in a court of law.

If genito-infectious disease is to be controlled, sexual promiscuity must either be controlled or made safe, or there must be an effective combination of these two procedures. Whether *unrestrained* sexual promiscuity, whatever its form, can be made safe, either by prophylaxis or by the application of medical and public health measures, is a moot question. The armed forces, although they exercise far greater control over their men than can ever be achieved in the civil population, are unable to control genito-infectious disease in the face of unrepressed prostitution, even though prophylaxis is made universally available and its use is constantly taught and urged. If prophylaxis could be depended upon to control the spread of infection, there would be no need for concern upon the part of the military authorities over the prevalence of infection, or the existence of prostitution, in the civil community.

It seems to require only that degree of increase in sexual promiscuity which ordinarily occurs in times of national stress or emergency, to reverse a downward trend in the incidence of genito-infectious disease. The whole world experienced an "epidemic" of gonorrhea and syphilis during and immediately after the first World War. Great Britain, although it has since developed an excellent medical control program, is once more concerned over an alarming increase in these diseases in both the armed forces and the civilian population. There is little doubt that similar increases will be experienced everywhere, even in the face of good medical and public health programs, unless prostitution and excessive promiscuity can be checked.

How much of the increase in infection will be due to the greater activity of commercial prostitutes, and how much to an acceleration of promiscuity in the general population, cannot be estimated. Under modern conditions it is often impossible to distinguish between prostitution and casual promiscuity. The tavern, night club, public dance hall, and many other places of entertainment, which provide for informal introductions between males and females, offer the same opportunity to the professional prostitute and the accommodating girl-friend-of-the-armed-forces alike. Both operate in such a manner that they are exceedingly difficult to police.

No information is available as to how far sexual promiscuity must be repressed if prophylaxis and medical and public health measures are to prove equal to the job of forcing the trend of infection downward. But the health officer who attempts to control the genito-infectious diseases in the face of tolerated prostitution or widespread sexual promiscuity, without making it clear to the community that these are serious handicaps to his program, will be assuming a great responsibility. His silent acceptance of them as necessary evils, about which nothing can be done, is likely to result in an invitation to participate in an attempt to make promiscuity safe.

It often happens that when pressure is put upon the police to do something about prostitution, the police evade the real issue by dropping the problem into the lap of the health officer, with considerable misguided public support. Instead of repressing prostitution as such, the police leave it with the health officer to

detain those women who have been arrested who prove to be infected. The remainder go uncontrolled. The laws of many states very conveniently play into the hands of the police by providing for the forcible examination of any person "reasonably suspected" of having a "venereal disease," and by defining prostitutes and their associates as automatically to be "reasonably suspect."

It is with the futility of such associations between police and health departments in the repression of prostitution that the remainder of this paper is concerned, and with an alternative procedure which has been proposed many times in the past, but the practical application of which has never been seriously attempted.

#### FUTILE PROCEDURES

##### *I. Police and Health Departments Combine to Harass the Prostitute.*

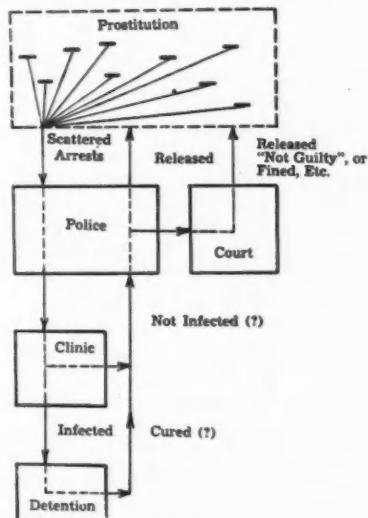


DIAGRAM I

A closed circuit, which always leads back to prostitution.

#### *Procedure:*

1. Police arrest prostitutes in raids, as street-walkers, or as "police witnesses" if they do not happen to be plying their professions at the moment. The latter procedure is given preference, since it does not require subsequent court action.
2. The prostitutes are examined by the health department. If found to be infected, they are isolated by the health department, in a detention home, until their infections are no longer thought to be communicable. They are then returned to the police. If they were arrested as "police witnesses" it is "dis-

covered" that they are no longer needed and they are allowed to go. The remainder may be fined, or their cases dismissed. Most are allowed to return to prostitution.

3. Those who are not found to be infected at the time of health department examination are returned to the police for disposition and eventually return to prostitution somewhat sooner than those who were found to be infected.

*Results:*

1. This is simply harrassment of the prostitute on the pretext of search for infection. It implies that the function of the law enforcement agency is only to act as an agent of the health department.

2. An infinitesimal proportion of the total number of prostitutes in the community is kept out of circulation, by health department quarantine, for a relatively short time.

3. No impression having been made upon male demand, those prostitutes who are free continue to satisfy this demand. They may be a little busier, but the more active a prostitute the more she spreads infection.

4. If "X" prostitutes (the capacity of detention) are kept out of circulation all of the time, and there is a demand for this additional number, "X" prostitutes will move into the area (since prostitution, *per se*, has not been repressed) to keep the supply equal to the demand. Thus, the original volume of prostitution will be maintained no matter what the health department does in the way of detention.

5. The public assumes that the problem has been solved since the health department is supposed to be keeping the infected women out of circulation.

6. Actually, the net gain in disease control has been zero. The relatively small proportion of prostitutes arrested at any time is only a "sample" of the whole mass, in which active infections exist in at least as high a rate as in the sample. This free mass goes on spreading infection. Those eventually freed from detention become reinfected and spread infection until they are again apprehended.

7. The whole procedure is simply a closed circuit, which always leads back to prostitution and to the spread of infection.

*II. "Medical Control" (?) of Prostitution by the Health Department.*

*Procedure:*

1. A considerable number, but by no means the majority, of the prostitutes in houses of prostitution and some of those on the streets, are known to and registered by the health department. They are required to obtain "certificates" of freedom from infection at regular intervals, from their own physicians or at the health department clinics. They are subject to "check" at the health depart-

ment clinic, on demand, regardless of who issues the certificate. An infected girl is supposed to keep out of circulation until adequately treated. The health officer makes regular inspections of the houses to see that the girls hold these certificates. All (?) new girls who come to town are expected to report to the health department for instruction in genital hygiene and in the recognition of infection in their male customers.

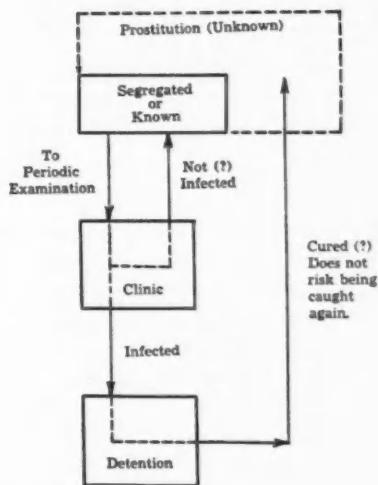


DIAGRAM II

Still a closed circuit.

#### Results:

1. The health department becomes the medical advisers of an illegal racket.
2. Infected girls, if dismissed from houses, simply go on to the streets, move to uncontrolled houses, operate from their own apartments or from cheap rooming-houses and hotels, move to other communities, or keep out of sight when inspections are made.
3. The police, when urged by the health department to close the houses, challenge the health officer to tell where the houses are. Obviously, if the health department identified a single house, "co-operation" with the health department would promptly cease. The health department can be the medical advisers of prostitution only so long as it "plays ball" with the business.
4. The community assumes that the problem has been solved because the health department is providing medical control.
5. It has been demonstrated, time and time again, that no system of medical examination of prostitutes can either detect any considerable proportion of communicable infections, or keep prostitutes free from infection. Furthermore, even this ineffective control does not extend to those houses which do not choose to

become identified with the health department, nor to those prostitutes who work the streets, hotels, apartment houses, taverns, night-clubs, etc.

*III. "Medical Control" (?) of Prostitution by the Health Department in Co-operation with the Police.*

*Procedure:*

This is simply a variation of the preceding method, in which the prostitutes in segregated districts are known to, and finger-printed and photographed by, the police. New girls coming into the area are required to report to the police. The police require all *known* prostitutes to report to the health department clinic for regular examinations. If no infection is detected, a certificate of "freedom" from infection is issued, which is good until the next examination is made.

*Results:*

The results are the same as when the health department, alone, attempts the medical control of prostitution, except that the police may be able to enforce examinations more generally than the health department can. It is well known, however, that any public agency which collaborates with an illegal racket soon becomes as degraded as the racket. Health departments are no more immune to this degrading influence than police departments or courts or other public officials. A "fee" to the health officer, or to the examining physician, will probably produce the desired certificate, even without examination. A health department which becomes degraded in this direction soon becomes completely unreliable in all its health functions. The community cannot afford to permit as important an agency as the health department to associate itself with any illegal racket.

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The medical examination of prostitutes reaches only those who can be readily identified as such because they work in known houses, usually in segregated districts. It does not affect the street-walker, the call-girl, the girl who works in a tavern, night-club or rooming-house on her own, nor the girl who prostitutes on a part-time basis to augment an inadequate income.

The temporary removal of those prostitutes whose infections can be detected has no effect upon the spread of infection in the community. Other prostitutes come in to take the places of those removed, to keep the supply equal to the demand. The whole mass of promiscuous women is potentially infectious, if not actually so at the moment of examination. A prostitute whose infection has become communicable today can infect many men before she is examined next week or next month; if, indeed, she is one of those who are subject to examination at all. A prostitute who is found to be "free" from infection at the time of examination may become infected and spread disease between examinations, or she may be a passive carrier of infectious material left in her vagina by any infected customer, even though her own infection has been cured or is non-communicable.

*If medical examination of prostitutes could prevent the spread of infection, those who support prostitution and derive profit from it would have cleaned it up long ago, at their own expense. It would be worth millions of dollars to prostitution to have it freed from infection, for it is the prolific spread of disease by prostitutes which subjects it to really serious public attack. Any community which tolerates prostitution has high genito-infectious disease rates.*

The only procedure which will prevent the spread of infection by prostitution is the active and constant and effective repression of prostitution, in whatever guise it may operate.

#### THE LIMITATIONS OF HEALTH DEPARTMENT CONTROL OF DISEASE, SPREAD BY PROSTITUTION, THROUGH THE USE OF EPIDEMIOLOGIC PROCEDURES

Epidemiologic procedures, accompanied by the effective treatment of as many infections as can be found, as soon after they occur as possible, serve to control the spread of much infection among those who are not excessively promiscuous, or who might become infected "innocently." This procedure cannot be expected to control infection as rapidly as it can be spread by tolerated prostitution, however, or by a generally promiscuous population.

The failure of epidemiology and treatment to control the spread of infection by prostitution or excessive promiscuity is due to the following:

1. It presupposes that a male customer or partner has been infected and has come to the attention of the health department.

(a) Innumerable infections are never reported to health departments. Many physicians, druggists, and other medical agencies refuse or fail to report their cases. It is impossible to enforce the reporting of infections which are known only to the physician or the druggist who makes the diagnosis. Lacking information as to the existence of an infection, the health department cannot proceed with the identification of the contacts or sources of infection.

(b) The majority of infections with syphilis do not come to medical attention early, when there may still be time to catch up with the source before the damage is all done. Innumerable gonococcal infections do not come to medical attention at all.

2. Even though an infection does come to medical attention, many physicians are unable, or make no attempt, to obtain the identification of the patient's contacts, or report them to the health department when they are unsuccessful in bringing them to medical observation.

3. Many infected males cannot, or profess not to be able to, identify their sexual contacts. Only 25 per cent of the alleged contacts of infected men at Fort Meade, in Maryland, could finally be located, and only half of these were found to have communicable infections at the time of examination. Men who pick up girls in taverns, night-clubs, dance halls, or on the streets, are not interested in the true names and home addresses of the girls. Exposure does not occur at the girls' homes.

4. The incubation period of gonorrhea is from three to five days. By the

time the infection has come to medical attention and the contact identified and the health department is notified, more time has passed. The girl has at least ten days to two weeks in which to spread infection before the health department can catch up with her, if she can be found at all. An active prostitute can infect a great many men in that time, even though she is eventually removed from circulation for a brief period. The incubation period of syphilis is from ten days to eight weeks (average three weeks). An infected prostitute can spread a great deal of infection before the health department even learns of her existence. And no account is taken of the infection she spreads before she infects the man whose infection finally comes to the attention of the health department.

The health department should trace every possible infection to a satisfactory conclusion, but epidemiologic processes cannot hope to reach more than a small proportion of the mass of infected women before they have done most of the damage which they ever can do. The effective control of genito-infectious disease will depend, ultimately, upon the repression of prostitution and excessive sexual promiscuity, combined with good medical and public health procedure.

#### THE CONSTRUCTIVE REPRESSION OF PROSTITUTION

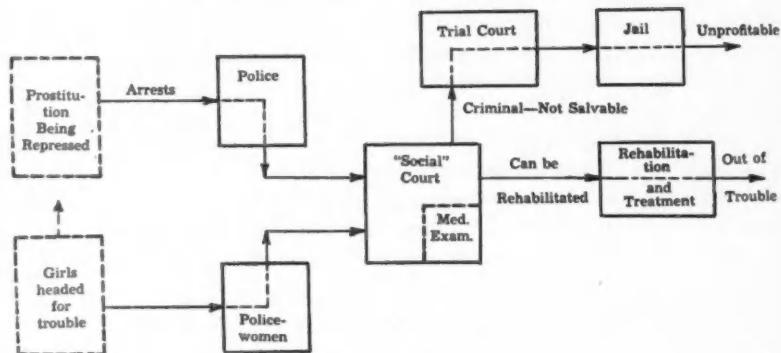


DIAGRAM III

No longer a closed circuit.

#### Procedure:

1. All known or discoverable houses of prostitution should be closed and *kept* closed. This can be accomplished by adequate padlock laws, under which premises which are used for prostitution are padlocked for at least a year. Madams, property owners, and any police, politicians or public officials who *derive profit* from prostitution should be prosecuted and, if guilty, be *jailed*. Fines only put the community in the position of deriving revenue from an illegal business, and rarely stop the business. It usually amounts to the payment of a "license" fee. The profits are usually quite adequate to the payment of this fine, or "fee." (Prostitution is illegal in the United States in every State except Nevada.)

2. Taverns, beer joints, night-clubs, over-night cabins, etc., should be properly supervised. (In Vancouver, unescorted men must be served in rooms to which women are not admitted. Unescorted women are not admitted to dance halls, night-clubs, etc. Apparently it *can* be done.)

3. Police women, trained in social service, should be employed to take charge of girls who seem headed for trouble, especially minors who have no business in these places, on the streets, or in the parks, after dark. Both they and their parents should be taken into a special court to determine who is at fault and what can be done about it.

4. Girls and women arrested for prostitution, whether commercial or clandestine, and girls headed for trouble, should be examined in a special court, staffed with psychiatrists, social workers, and specially trained judges who are primarily interested in determining what can be done *for* them. Confirmed prostitutes should be turned over for prosecution and *imprisonment*. It does no good to fine them or drive them to other communities; they only continue to prostitute and spread disease. The mentally inadequate should be permanently institutionalized, or institutionalized for rehabilitation, depending upon their capacities. Girls who are simply on the wrong road, and who cannot be trusted to parental control or successfully placed in more favourable environments, should be institutionalized for rehabilitation under court guardianship.

5. The law should provide for the examination of any girl or woman who is found guilty as charged, and if the charge involves a sexual offence. Such an examination should be a function of the enforcement agency, although the health department in a small community may provide the medical service for the enforcement agency. The result of the examination should not be known to the court until guilt or innocence has been established, and should then be used only to enable the court to plan more intelligently for the care of the individual. Infection should never be confused with crime, and the *punishment*, if any, should never be dependent in any way upon the presence or absence of disease. Intelligent provision for the future of the girl cannot be made, however, without taking into account any medical problems (infection, pregnancy, mental deficiencies, tuberculosis, or any other abnormality) involved.

6. Institutions for the rehabilitation of these girls, under court guardianship when necessary, should be maintained by competent welfare agencies and staffed with competent social workers and instructors. Any necessary medical care should be supplied as a function of the institution.

It is to be noted that this constructive process cannot be effective if it is not associated with the constant repression of prostitution. Otherwise the rehabilitation program will only draw girls out of one end of the system while new girls are recruited to it from the other. Thus, the problem of prostitution will always remain, and the spread of disease will go on as always.

It is also to be noted that there must be carried on, constantly, a program of public education, beginning with the youngest child, which will tend to discourage male demand for prostitutes. *There can be no prostitution without male demand.* There is no logic whatever in the assumption that the male should be

accorded the right to sexual freedom, whereas the female who permits him to exercise that freedom is guilty of prostitution. If prostitution is a degrading profession, and if it is a prolific spreader of disease, why should the male be permitted to demand that prostitutes be available to enable him to exercise his sexual freedom?

#### EMERGENCY MEASURES

Obviously this entire program cannot be put into operation at once. It is imperative that as much of it as possible be put into operation now, if any real contribution is to be made to the reduction of infection in the armed forces during the present emergency. There is no reason why the following measures could not be used at once:

1. The repression, by the police, of all discoverable prostitution, through the apprehension of all those who contribute to prostitution, or who derive profit from it. Arrest and conviction of a few madams, property owners and male customers of prostitutes would have an immediate and salutary effect.
2. Support of the police by the courts. Jail sentences should be meted out to those who profit from prostitution and for those prostitutes who cannot be rehabilitated.
3. The adequate policing of taverns, night-clubs, dance halls, streets, parks, taxicabs and other "facilitators" of sexual promiscuity.
4. The reorganization of the courts to provide for the intelligent disposal of problems in sex behaviour according to what can be done *for* the girl in the direction of rehabilitation, the detection and treatment of infection to be a function of rehabilitation, and not a method for keeping tolerated prostitution free from infection, which cannot be done.
5. As rapidly as they can be made available, the construction of institutions for the more effective rehabilitation of those delinquent girls who are susceptible to rehabilitation.

# Canada's National Health and Venereal Disease Control

## A STATEMENT ON THE GENERAL POLICY CONCERNING CANADA'S NATIONAL VENEREAL DISEASE CONTROL PROGRAM

D. H. WILLIAMS

*Lieutenant-Colonel, R.C.A.M.C.\**

FOR Canada the outcome of the present conflict is largely dependent upon strength of body, wholesomeness of mind and steadfastness of purpose. Of these human elements of victory, health is our particular concern in this presentation. To fight, Canada must be fit. To win the war, Canada must be strong. While we are engaged resolutely in waging battle against the enemies without, we must not neglect the enemies within. Of all those insidious influences which from within may corrode and undermine our efficiency to fight, disease is the most serious, and of all disease enemies the venereal diseases, syphilis and gonorrhoea, are the ones which can wreak the most havoc.

In our communities are stationed for military training and defence purposes thousands of the cream of our manhood and womanhood. Upon their health and fitness depends the future of our homes. In our midst live our fellow Canadian citizens whose civilian tasks are essential to the success of battle. As a nation, Canada must maintain its high standards of health. It must guard its people against the insidious encroachment of ill health in general and syphilis and gonorrhoea in particular,—an encroachment which during the past four hundred years always has been associated with a state of war. If it is so willed by the people of Canada and its governing agencies, during this war syphilis and gonorrhoea shall be held in check. We have at hand all the means necessary to hold at bay these master saboteurs of war effort and national health. It is even within the realm of possibility for Canada to reduce the venereal diseases to the vanishing point. This should be Canada's health objective.

The roots of the problem of venereal disease lie buried deep in inherent defects of human behaviour, in remediable unwholesome community conditions, and in a failure to apply effectively the measures of modern medical science. No people are in a better position to overcome the threat of venereal disease than are Canadians today. The will to banish this "Fifth Column" from our midst must encompass a concerted attack. With the Home and Church lie the responsibility for strengthening the bonds of family life and fortifying individual character. On citizens generally, and on civilian authorities particularly, rests the onus for remedying unwholesome community conditions which predispose to

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the spread of venereal infection. Those entrusted with the armaments of public health must use them adroitly and aggressively.

Of the six known venereal diseases, syphilis and gonorrhoea are the only ones which reach important proportions from the public health standpoint in Canada. These infections extend as a dank mesh through the fabric of our communities from the Atlantic to the Pacific. They constitute one of the major health problems in every city and village. Syphilis the killer, gonorrhoea the sterilizer, strike at youth. Three-quarters of those infected acquire these diseases between the ages of 16 and 30 years. Let us not forget that, whatever the effects of venereal disease may be in the individual, ultimately it is the home and home life that suffer the brunt of the attack. In times of war the home life of a nation is in jeopardy. The bulwarks of home life in Canada must be strengthened. No crevices must permit unsavory wartime influences to enter and bear with them syphilis and gonorrhoea.

The easily preventable human tragedy of syphilis and gonorrhoea is largely a heritage of neglect, prudery and a failure to face squarely the problem and its casual background. What other countries have done, Canada also can do. Great Britain in twenty years cut its syphilis rate in half. In twenty years the Scandinavian countries conquered syphilis and reduced it to the status of a rare disease. It is over thirty years since medical science provided the weapons necessary to destroy the venereal diseases. During all this time painstaking research has steadily improved these armaments. Yet these public health weapons are still largely unused.

We do not have to look to Europe to see the national dividends accruing from comprehensive venereal disease control measures. In the United States the courageous program launched by the United States Public Health Service under the forthright leadership of Surgeon-General Parran, endorsed and supported by the people of the United States and their governing agencies, has reduced venereal disease in their Armed Forces to unprecedented low rates. Large sums of federal money have been made available to local health departments and guidance has been given in the wise expenditure of this money. A special government agency, the Social Protection Division, has been set up, whose sole purpose is to lead the attack against illegally-operating, disease-dispensing, disorderly houses and other unsavory community influences. In the words of Surgeon-General Parran—"The cheapest thing we can do with syphilis is to cure it."

Reduction of venereal disease in countries that have had the satisfaction to experience this favourable trend, has gone hand in hand with public enlightenment and education; with general recognition of social and economic factors as profoundly influencing the prevalence; with a national morality envisaging homes where warmth, food, security and affection abound; with a high regard for justice and the enforcement of laws directed against the third-party participants in commercialized prostitution.

Is Canada determined to keep strong, to keep her fighting men fit, to keep her war workers sound in body and to guard her national health as the most

precious heritage the past has given, the most precious trust the present bestows, and her greatest contribution to posterity? Is Canada determined that the exigencies of war shall not permit syphilis and gonorrhoea to destroy or mar this heritage?

#### "THE FOUR-SECTOR CANADIAN FRONT AGAINST VENEREAL DISEASE"

Canada's response to this challenge is a "Four-sector Canadian Front against Venereal Disease." The sectors which, united, co-ordinated and welded into an impregnable line, will advance upon syphilis and gonorrhoea, are the health, welfare, legal and moral sectors—components of an indivisible whole aligned against a common foe. The ultimate objective is to destroy syphilis and gonorrhoea. The purpose of each sector is to take the offensive with the weapons peculiar to its own particular method of attack. Waging unrelenting war on the health sector with the weapons of modern medical science and public health procedure will be physicians, nurses, health departments, university medical training centres and hospitals. Leading the attack on the welfare sector will be social workers and welfare agencies armed to battle squalor, overcrowding, inanition, neglect and insecurity. Directing a vigorous, unrelenting, sustained action on the legal sector are the courts, the legal profession and police agencies, whose action seeks out and brings to justice those who for personal gain purvey to men's weaknesses. On the moral sector the battle is led by the churches and homes of Canada, strengthening the moral fibre of our nation and upholding the sanctity of marriage and family life.

Each sector is well defined from the standpoint of its territory, its personnel and its armaments. The ultimate objective is the same. Each must respect the part which the other plays in the engagement. Each must recognize its own sector as integrated into the "Canadian Four-sector Front against Venereal Disease."

The Health Sector forces are being marshalled. All preventive control health measures are being intensified and co-ordinated and it is anticipated that a common strategy will be adopted by all health agencies throughout Canada. The Departments of National Defence jointly with the Department of Pensions and National Health and the Provincial Health Departments are working in close co-operation. Common administrative machinery has been already set up by the Department of National Defence and the Federal Health Department. The Armed Forces through their three medical services are providing the most up-to-date facilities for preventing and curing venereal disease and thereby improving fighting fitness.

The basis of the six-point strategy of the health sector rests upon the axioms that syphilis and gonorrhoea, in common with other communicable diseases, are vulnerable to the weapons of public health and thereby may be cured and prevented. Canada has reduced smallpox, typhoid fever and diphtheria to the status of rare diseases. Tuberculosis is being overcome. Venereal disease is the next great plague to go! The backbone of the health sector is the fact that syphilis and gonorrhoea are curable and preventable—a fact that cannot be

reiterated too often or too loudly. The word "curable" is the artillery, the word "preventable" the infantry of the health thrust.

The first of the six points in the health strategy is public education. Public enlightenment on a wholesome, dignified, reasonable basis will silence false fears, banish outworn fallacies and end the tragic conspiracy of silence in which we have all been partners. Today, fortunately there is a widespread desire on the part of citizens for factual information concerning syphilis and gonorrhoea. Fear and defeatism are giving place to frank, intelligent discussion of this major Canadian health problem. To encourage this wholesome trend a vigorous health educational program is under way which will bring the facts to the people. The informative material and the media are to be carefully selected. The content will be designed to support and not jeopardize in any way the program of the welfare, legal and moral sectors.

Adequate diagnostic and treatment facilities to provide care for all who need it in Canada is the second point in our health strategy. It is our duty to see that every Canadian who requires examination or treatment shall have the best that modern medical science can provide. Today, Provincial Health Department Laboratories, heavily weighted with extra burdens thrust on them by the war, are providing, in spite of shortages of staff and equipment, a heroic service to the nation. They must be assisted if they are to carry on and meet the ever-increasing demands for their service. With public recognition of the need to discover and treat the hidden syphilis in our midst, there will be even greater demands on their facilities. Each year the Federal Government carries forward the war against syphilis by purchasing and distributing through the Provincial Health Departments \$50,000 worth of arsenicals to private physicians, hospitals and clinics.

There is no place in Canada today for the treatment of venereal disease by unqualified persons using fraudulent and dangerous procedures. This is the basis of the third strategic point. Quackery and charlatany must go. The natural prejudice, fear and prudery associated with syphilis and gonorrhoea have played into the hands of those who pose as specialists in treating "blood diseases" and the "ills of men". These vultures take from the infected victim not only his money, but also his chances of being cured. Precious time is lost. The infection is only aggravated and perpetuated. Adequate provincial laws exist to meet this danger to the national health but are not being enforced.

The fourth point in the health sector thrust focuses upon the greatest of all tragedies in the realm of syphilis—the infection of little children. This continuing, preventable, pathetic blot on our national health could be erased within one year by a simple expedient—adequate medical prenatal care of the expectant mother before the fifth month. It is now known that if syphilis in an expectant mother is discovered by blood testing before the fifth month and if proper weekly injection treatment is instituted, the new-born baby is given almost a hundred per cent chance of being normal, healthy and completely free from syphilis. This fact must be made known to every woman in Canada. If every expectant mother in Canada went to her physician before

the fifth month and if every physician in Canada were to make blood tests for syphilis and provide proper care where necessary, syphilitic babies before this year is out would become a rarity in our land.

Another tragedy inseparably bound with the foregoing and antedating it, provides the reason for our fifth point. This is the innocent infection of young Canadian wives following marriage. A prime requisite to the establishment of a sound home is sound health on the part of the husband and wife—the future father and mother. Wise partners preparing for marriage recognize that successful family life is contingent among other factors upon health and physical fitness. Syphilis discovered in an unsuspecting partner can be treated and cured by careful medical examination and blood tests. Thereafter a home with children can be established without danger or ill effect.

The sixth and final point in the health sector of the "Front against Venereal Disease" involves effective measures directed toward seeking out and treating those persons who are wittingly or unwittingly spreading infection, and closely related thereto and equally important measures to deal with the facilitators directly and indirectly associated with unsavory community conditions which make it easy for highly diseased persons to spread their infection. Reference is made particularly to houses of prostitution and other less obvious places of facilitation. This problem is best outlined in the words of Dr. Walter Clarke, executive director of the American Social Hygiene Association, in urging that people be educated to the problems created by prostitution: "They must feel sure that prostitution cannot be made safe and sanitary; that it spreads disease; that it corrupts the morals of young people; breaks up families; demoralizes public officials; provides a haven for petty criminals; and is constantly associated with ineptitude and drug addiction. In short, if citizens are sure that there is nothing good about prostitution and that it is entirely undesirable, they will favour its repression, both during and after the war."

To summarize, these are the salient features of the six-point plan of strategy that the Health Sector has adopted:

1. Wholesome, dignified health education concerning syphilis and gonorrhoea.
2. Adequate diagnostic and treatment facilities for all persons suffering from venereal disease.
3. The suppression of quackery and charlatany in the treatment of venereal disease.
4. Early adequate prenatal care including blood tests for expectant mothers to prevent the tragic infection of babies.
5. General health examination including blood tests for syphilis before marriage.
6. Effective measures to deal with persons and community conditions associated with the deliberate spreading of venereal disease.

This program moving abreast with those of the welfare, legal and moral sectors will present a formidable front against venereal disease. The threat of

syphilis and gonorrhoea to our nation and its war effort cannot be taken lightly. Canada is determined to keep strong, to keep her fighting men fit, to keep her war workers sound in body and to guard her national health as the most precious heritage the past has given, the most precious trust the present bestows, and her greatest contribution to posterity. Canada is determined that the exigencies of war shall not permit syphilis and gonorrhoea to destroy or mar this heritage. The "Four-sector Front against Venereal Disease" is Canada's answer. Let us go forward resolutely and with sustained vigor until victory over venereal disease is complete. Then may we look back and see syphilis and gonorrhoea added to the lengthening list of vanquished foes of human health and happiness.

**THIRTY-SECOND ANNUAL MEETING  
CANADIAN PUBLIC HEALTH ASSOCIATION  
ROYAL YORK HOTEL, TORONTO  
MONDAY AND TUESDAY  
OCTOBER 4 AND 5**

## Industrial Health in Wartime\*

WILLIAM A. WECKER

Oshawa, Ontario†

As an industrialist my prime concern with industrial health is the practical application of an industrial health program in direct relationship to its bearing on production. Therefore, what I have to say will deal largely with the mechanics of such a program. Theories or sociological aspects are matters with which our chief physician could deal better than I; but I can assure you that carrying out an industrial health program among a group of employees which has increased almost three hundred per cent since the beginning of the war has left little time for theorizing. And its success has been such that we have, by taking thought, been able to avoid any outbreak of epidemic disease and reduce occupational illnesses to a minimum, even in the face of our sudden trebling of employees. This is no mean achievement, credit for which goes to our chief physician, Dr. A. S. Malcolmson, and his able corps of assistants.

The industrial health program itself is also co-related to our air-raid precaution system. Feeling that it is the duty of the major industry in a given area to take the lead in providing organization for emergencies which may disrupt production and civilian services, we radically improved our medical emergency rating so that we would be able to "take care of our own" in the event of sabotage or attack—and take care of them without recourse to other civilian services, hydro power, or other precautionary organizations. But that is another story which, while interesting, has no bearing on my immediate subject except that we feel that our air-raid prevention system would not have been adequate if we had not first been prepared with a more than adequate industrial health program with its trained physicians, nurses, and the large number of first-aid personnel who have been trained by our industrial physician. We are proud of the fact that if our plant ever suffers attack, we are in a position to resume production with a minimum of interruption. After all, production is our "second front."

The McKinnon Industries Limited is divided into four divisions which have widely divergent engineering problems. These divisions require an unusual variety of skilled employees as indicated by our articles of manufacture. Among these are: spark plugs, ignition coils, condensors, motor car distributors, starting motor generators, shock absorbers, steering gears, hydraulic brake parts, transmission, front and rear automobile axle assemblies, 4-wheel drive gear sets, universal joints, all types of fractional horsepower electric motors, power producing units for radio equipment, range transmitting information equipment, 3.7

\*Presented at a meeting of the Industrial Division of the Health League of Canada held in Toronto on October 21, 1942.

†At the time this address was given, Mr. Wecker was President and General Manager of the McKinnon Industries Limited, St. Catharines. He is now General Manager of General Motors of Canada, Oshawa.

anti-aircraft gun traversing and elevating equipment, malleable iron castings, grey iron castings, drop forgings.

Early in the war we were called upon for production of war materials and now we are engaged 100 per cent in that enterprise. We had to make products that were new to us, and handle materials which were strange to our engineering staff and factory personnel. The speed demanded in converting our plant and equipment to war production gave us no time for the exhaustive study which is part and parcel of ordinary productive routine, and presented us with numerous variations in the problem of health maintenance.

These variations were due to differences in products and processes, to the necessity of training large numbers of new, unskilled employees in a very short space of time, to doubling our foundry capacity, to effects on operators of processes new to our productive facilities such as die casting, degreasing, intricate electrical windings, etc.—affecting both old and new employees, and the necessity of preventing accidents to new employees, many of whom were entirely new to industrial work. Some of the latter were youngsters from farms who presented problems in industrial assimilation, and youngsters from school who had never worked at jobs of any kind before. Although accident prevention is not strictly a factor in maintenance of industrial health, it is, in a general way, inseparable.

The new problems of war production also introduced changes in industrial technique. The immediacy of war demands forced us to arrange our production plans so that our manual work could be performed by workers after as little as twenty minutes of training. This was accomplished by reducing each operation in production procedure to the lowest possible denominator—that is, by reducing them to a point rather below the utmost simplicity.

To utilize existing equipment to the fullest degree multiple shifts were required. Night operations had to be added to departments which formerly had operated only day shifts. Large numbers of new employees had to be adjusted to night-shift operation. To prevent eyestrain exceptionally good lighting was installed. Heating and ventilation were dealt with so that new, night-shift employees were generously provided with all comforts available to day workers.

To equalize unpopular night work, we employed the technique of rotating shifts so that, except for a few skilled tradesmen whose seniority entitled them to remain on day shifts, everyone shared alike.

Before the war, you will recall, provincial regulations prevented girls working on night shifts. These regulations were changed. To prevent the raising of moral issues we arranged that there would be no change of shifts between 11.00 p.m. and 7.00 a.m. They agreed to a short lunch period amplified by a generous fatigue allowance which gave ample time for fatigue recesses. In cases of illness, the girls are taken home. This gave our industry the advantage of escaping from the scandalmongery sometimes associated with large groups of girl and women employees. Many, however, of our engineers and technicians worked a good part of both shifts for months on end to make sure that night

production was equal in quality and speed to day production. These men are the unsung heroes of the second front.

Another related production problem, and one of the really difficult ones, is securing and developing supervisors capable of planning work efficiently and assuming responsibility for each individual employee in their charge. Unless supervisors are entirely impartial, there is bound to be friction. This, you'll agree, is especially true where large numbers of women and girls are employed. Unless supervisors are properly trained, and unless management is constantly on the alert to see to it that supervisors are carrying out their assignments with reasonably good judgment, there is first discontent, then a lag in production, absenteeism, and finally migration of employees.

This last is a factor of tremendous significance. Besides discontent, workers migrate or float from job to job because of poor housing, poor recreational facilities, because of fancied slights, because of misunderstandings about the taxes the government requires (and which we must deduct from payroll) and because they hope to secure higher rates of pay elsewhere. Distant fields always look greener.

With regard to these problems, in St. Catharines, Wartime Housing Limited has erected over 800 houses, as well as dormitories for some 300 single workmen. This, we believe, will release private homes to girl workers who are strangers in the city. The acute shortage of housing has been relieved to an appreciable degree, but it is by no means solved and migrating workers remain a serious problem. Many of them are of unstable character and it has been the aim of our personnel division to weed out this type of applicant—though with the existing shortage of workers we are not in a very commanding position to choose. Unfortunately for industry, and for the floater himself, he seldom gains the advantages he hopes for in changing from job to job. This is a matter of education which we hope the Selective Service Board will tackle in due time. We have also suffered heavy losses because of men and girls joining the active service forces, although this percentage is not so high as might be thought.

I have presented these details because there is an intimate relationship between an industrial health program and the management problems it must meet. These new problems make a practical industrial health program vital to maintaining production on a scale that will win the war.

The introduction of women workers, and the necessity of fitting older men into strenuous occupations, force a lowering of physical standards. As I said, we are in no position to choose. We simply have to produce to the utmost, no matter what preconceived theories or methods we had. So, when we had to lower physical standards of employment, we immediately doubled our medical staff and sharply increased our medical facilities. We encouraged all employees, especially new employees, to consult our medical department at any time they thought the department could help them. This has had interesting results.

Among them is this: that records kept of medical services to each employee permitted early detection of any physical consequence of new operations, new methods, or new processes so that we have been able to keep our entire operation

almost free of occupational ailments. In addition, Dr. Malcolmson feels that we have made a very real contribution in the field of preventive medicine because whenever any employee needs medical attention that is not strictly the problem of the plant physicians, he is sent to his own physician for treatment or surgery. If he has no physician, he is directed to one. A tribute to the success of this method is that it has earned the friendly co-operation of all medical practitioners in the area. As experts in the field of industrial medicine, I'm sure you will realize how important it is to secure medical attention for war workers before their deficiencies, diseases, or need for surgical care reach dangerous proportions.

Now I should like to give some attention to the most difficult division of industrial health in our operation. That is the foundry. A foundry presents a variety of possible dangers to health, besides accident hazards not common to industry generally. It is difficult to secure sufficient foundry workers. This is probably because few workers know how radically working conditions in foundries have been improved in the last few years.

Every new employee assigned to our foundry is X-rayed before going to work. If the X-ray reveals that foundry work might be injurious to health—even borderline risk—the employee is appraised of this fact and advised to seek work outside the foundry industry. We always offer posts in other departments of the plant.

In the McKinnon foundry dust conditions are rigidly controlled. There is less than half the percentage of dust permissible under provincial regulations. This is accomplished with forced-draft ventilation which provides fresh air abundantly: the same equipment reduces excessive heat.

But foundries are still not pleasant places in which to work, compared with some other occupations. Yet they are essential to successful conduct of the war effort. Just now, the quality of labour available for foundry work is considerably below par and we are up against the types of complaints that inevitably emanate from sub-standard workmen. Our medical staff has not yet been able to solve this problem. Because sub-standard workmen are subject to development of mental conditions, because they are likely to feel themselves victims of imaginary ailments, shower and washroom facilities are amply provided so that the employees will not suffer embarrassment from "looking dirty" on the way home from work. You'd be surprised, unless you had experience of foundry operations, how important a factor this is.

Now, you will, I'm sure, understand why I digressed from the subject of industrial health to show you how broad a picture must be drawn if the significance of the successful health program is to be fairly assessed. At our plant we are glad to be able to report that sterile greases, and oils have sharply decreased industrial dermatitis; we have taken steps to eliminate the risk of infection inherent in the use of wiping cloths by supplying individual, laundered towels; we have been lavish in providing that oldest and best hygienic measure—an abundant supply of soap and towels conveniently located for all employees; we have been watchful of heating and lighting, and believe that our freedom from any sort of epidemic is the best token of the success of our program.

I should like to mention also that the original health program, as we first envisaged it, has changed almost beyond recognition. We have tried to develop employee interest in health and preventive medicine. We are prepared to go farther. We already have an economical plan of employee sickness and hospitalization insurance. We have retained a visiting nurse with a background in sociology to check on sick employees; we have appointed a young woman as co-ordinator of female personnel; and finally, as soon as we can secure the necessary materials, we are placing milk bars throughout the plant to aid in bringing employee nutrition up to standard. In these respects, we believe that the educational effort, carried out among employees on these lines of direct medical, nursing, and social contact, will maintain our present high standard of industrial health and gradually improve it even in the face of the disadvantage of lowering physical standards in accepting new employees. Besides direct contact work with employees, the plant magazine carries a monthly medical feature dealing with general or seasonal aspects of health.

In conclusion, I suggest that the medical profession can be of very real help to management in the conduct of the production war if medical practitioners will familiarize themselves with the working conditions in the industrial establishments in their districts. They would be welcome visitors to most plants. Then, when treating their patients they will be better able to appraise the working conditions most frequently complained of. My experience is that this procedure aids doctors in prescribing, especially if they look into the patient's mental outlook and recreational activities.

I have in mind, again, the foundry. The public notion of foundries is that they all are hot, dirty, and the work excessively onerous. Yet in the McKinnon foundry we have numbers of girls who work in their street clothes and more than 80 per cent of the men in the foundry go back and forth from work in their working clothes. Where the work is hot, the section is segregated, and where it is heavy, there is frequent relief for the men. A physician friend of mine, who said he had been brought up in a foundry, could hardly believe that foundries had changed so; after inspecting ours, he insists that foundry work is much less difficult than many other kinds of industrial work. That is the thought I'd like to leave with you; confer with plant management if you wish to make a very real contribution to the solving of the problems of fatigue and absenteeism.

# Serologic Types of Haemolytic Streptococci in Scarlet Fever in Ottawa\*

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THE introduction of a rapid slide agglutination method for the typing of the haemolytic streptococcus and the description of a large number of serological types of this organism by the late Dr. F. Griffith (1, 2, 3) instigated numerous studies in many parts of the world on the distribution and significance of these Griffith types in scarlet fever.

While all of the numerous Griffith types have been isolated at one time or another from scarlet fever, there appears to be, nevertheless, a strong tendency for certain types to predominate in certain localities.

Attempts have also been made to study the severity of the infection produced by the different serological types, and some investigators have reported marked differences (4, 5, 6), while others have found none (7, 8).

The primary purpose of this investigation was to study, over a period of at least a year, the incidence and seasonal distribution of serological types of haemolytic streptococcus in scarlet fever among the residents of Ottawa. At the same time, an attempt was made to correlate serologic type and the severity of the disease.

The results to be reported in this paper are based on the bacteriological examination of almost all cases of scarlet fever admitted to Strathcona Isolation Hospital, Ottawa, during eighteen consecutive months, between September 1940 and February 1942.

## METHODS

Routine throat swabs were taken when patients were admitted to the hospital. The swabs were plated out, within a few hours of their collection, on horse-blood agar with a sugar-free veal infusion base. The plates were incubated aerobically for 18-24 hours and the haemolytic colonies examined under a dissecting microscope for morphological differences. Plates were again examined after an additional 24 hours' incubation at room temperature. Colonies, representative of the different morphological types, were isolated and studied.

All cultures were first grouped. Fuller's (9) formamide method of extraction was routinely used and the actual technique of the precipitin test was that of the micro-method described by Lancefield (10). This simplified rapid test has been found highly satisfactory. All group A cultures were then typed.

The Griffith slide agglutination method of typing was used (3). One of

\*Presented at the eleventh annual Christmas meeting of the Laboratory Section, Canadian Public Health Association, held in Toronto, December 17 and 18, 1942.

the commonest technical difficulties of this test is the securing of stable non-granular suspensions of the organisms to be tested. In the literature can be found many suggestions for overcoming this difficulty. Our procedure included many of these. Following Sia's method (11), we used as a routine rabbit serum, dextrose, beef-heart infusion broth and with it obtained exceptionally satisfactory results.

Several workers have observed that growth in the presence of serum destroyed the agglutinability of certain strains. In this study, several cultures, particularly those of type 14, failed to agglutinate with their specific antisera when grown in rabbit serum broth.

All cultures of type 6 and many of the strains referred to as 19(17) still remained granular and unsuitable for agglutination tests when grown in serum broth. This difficulty was often easily overcome by the addition of a few drops of concentrated solution of sodium carbonate to the suspension for agglutination; this treatment immediately rendered the suspension non-granular without destroying the specificity of the agglutination test.

Several workers have mentioned the value of trypsin in reducing the granularity of a strain. On many particularly refractory strains, suitable suspensions were obtained by the addition of one to two drops of Difco-Bacto Trypsin to the culture, after decanting most of the broth, and incubating at 37°C., a modification of the method used by Rudd, White and Ward (12). Usually a couple of hours' incubation is sufficient to render the suspensions suitable for use, but sometimes it is necessary to leave them overnight in the incubator. This treatment does not appear to destroy the specificity of the reaction. This method was found so satisfactory that, towards the end of this investigation, it was adopted in place of the serum broth method in the routine typing of all granular strains.

Incubation at room temperature has generally been found to be more conducive to non-granular growth than incubation at higher temperatures. In this investigation all cultures to be used for the agglutination test were incubated at 26-29°C.

Doubtful strains were further confirmed by the cultural tests of Ward and Rudd (13) and of Keogh and Simmons (14); namely, growth in serum peptone agar and the fermentation of lactose, mannite and cellobiose.

A number of cultures were further identified by Lancefield's (15) M-precipitin test, the sera for which were very kindly supplied by Dr. Lancefield.

#### RESULTS

##### *SeroLogic Types of Haemolytic Streptococci isolated from Cases of Scarlet Fever on admission to Isolation Hospital*

Nine hundred and ninety-one cases of scarlet fever were reported in the City of Ottawa between September 1940 and February 1942, of which 965 (97.3 per cent) were admitted to Strathcona Isolation Hospital.

Nine hundred and fifty-seven (96.5 per cent of all reported cases) were swabbed and cultured.

In Table I are given the number of cases of scarlet fever admitted to hospital each month, the number examined on admission, and the types of haemolytic streptococci found in these cases. In Part A of the table are given the figures for the resident civil population of the city, while in Part B are the results of the bacteriological examination of a number of members of the Armed Forces, admitted to hospital, most of whom were transient in their residence and may have contracted scarlet fever in other parts of the country.

TABLE 1

SHOWING THE NUMBER OF CASES OF SCARLET FEVER ADMITTED TO ISOLATION HOSPITAL, OTTAWA, SEPTEMBER 1940 TO FEBRUARY 1942, THE NUMBER EXAMINED, AND THE DISTRIBUTION OF THE SEROLOGICAL TYPES OF HAEMOLYTIC STREPTOCOCCI ISOLATED

A. *Civil Population*

Month and Year	Cases Admitted	Cases Examined	Cases Negative	Serological Type											
				1	2	3	4	6	9	11	14	17	19(17)	25	?
<i>1940</i>															
Sept.	27	27	—	4*	—	21*	1	—	—	—	2	—	—	—	—
Oct.	57	55	3	3	7	39	2	—	—	—	1	—	—	—	—
Nov.	49	49	3	—	2	38*	3*	—	—	1	3	—	—	—	—
Dec.	55	54	6	—	2	44	1	—	—	1	—	—	—	—	—
<i>1941</i>															
Jan.	64	64	3	1*	3	51*	3	—	—	—	2	—	—	—	2
Feb.	54	54	—	—	—	43	1	—	5	—	4	—	—	—	1
Mar.	83	82	7	—	—	59	5	—	—	1	1	1	1	5	—
Apr.	68	67	3	—	3	45	3	—	—	1	1	1	1	11	—
May	121	121	7	—	2	77	6	—	—	1	2	1	25	—	—
June	77	77	3	—	10	33	6	1	—	2*	—	—	23*	—	—
July	38	38	10	—	3	12	3	3	—	—	1	—	6	—	—
Aug.	15	15	2	—	6	3	—	1	—	—	—	—	3	—	—
Sept.	30	30	3	—	6	11	7	1	—	—	—	—	2	—	—
Oct.	30	30	4	—	3	5	7	4	—	1	1	1	3	—	2
Nov.	45	44	1	—	3	8	14	4	—	—	5	—	9	—	—
Dec.	37	37	4	—	1	3	5	5	—	1	3	—	13	1	1
<i>1942</i>															
Jan.	39	39	4	—	—	7	4	14	—	—	3	—	7	—	—
Feb.	24	24	1	—	—	5	2	11	—	—	1	—	4	—	—
	913	907	64	8	51	504	73	44	5	9	30	2	111	1	9

\*two types found in one patient.

B. *Members of the Armed Forces*

<i>1940</i>	1	1	—	—	—	—	—	1	—	—	—	—	—	—	—
Dec.	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>1941</i>	10	10	—	—	6	2	—	1	—	—	—	—	—	1	—
Jan.	9	9	—	—	—	1	—	—	2	—	—	—	—	4	—
Feb.	13	12	—	—	—	2	—	4	—	—	—	—	—	6	—
Mar.	7	7	—	—	—	2	—	—	—	—	—	—	—	5	—
Apr.	2	2	—	—	—	—	—	—	—	—	—	—	2	—	—
May	1	1	—	—	—	—	—	—	—	—	—	—	1	—	—
June	1	1	—	—	—	—	—	—	—	—	—	—	1	—	—
July	1	1	—	—	—	—	—	—	—	—	—	—	1	—	—
Dec.	1	1	—	—	—	—	—	—	—	—	—	—	1	—	—
<i>1942</i>	1	1	—	—	—	—	—	—	—	—	—	—	1	—	—
Jan.	5	5	—	—	—	1	—	—	—	—	—	—	4	—	—
	51	50	—	—	7	9	—	8	—	—	—	—	26	—	—
	965	957	—	—	58	513	—	52	—	—	—	—	137	—	—

Of the 957 cases examined, Group A haemolytic streptococci were recovered from 893 (93.4 per cent).

Only four cases yielded more than one type of haemolytic streptococcus on admission.

Almost all of the group A streptococci isolated from cases of scarlet fever belonged to one or another of the Griffith types. Of 897 strains isolated from cases on admission to hospital 890 (99.2 per cent) were successfully typed.

Types 3, 19(17), 4, 2, 6, and 14 were most commonly found, while types 1, 9, 11, 17 and 25 were seldom found and accounted for only 2.5 per cent of all strains isolated.

The seasonal variation of the six common serologic types is shown graphically as percentages of the total number of *Strep. pyogenes* cultures isolated (figure 1).

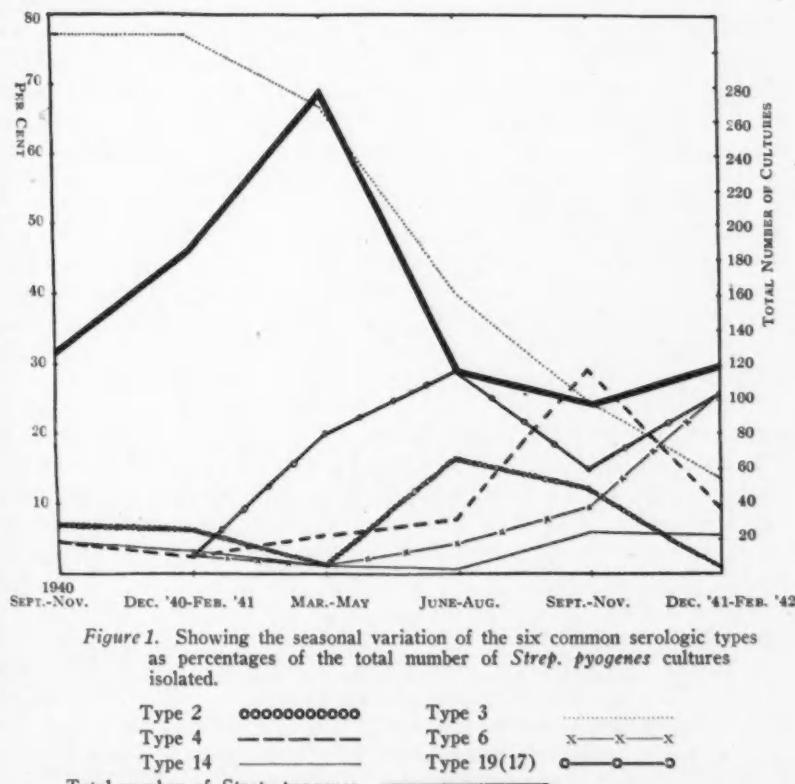


Figure 1. Showing the seasonal variation of the six common serologic types as percentages of the total number of *Strep. pyogenes* cultures isolated.

Type 2      ●●●●●●●●●●●●  
 Type 4      - - - - -  
 Type 14      - - - - -  
 Type 19(17)      ○○○○○○○○○○○○  
 Type 3      .....  
 Type 6      x-x-x-x

Total number of *Strep. pyogenes*.      —————

Type 3 was the outstandingly predominant strain during the first twelve months. It was the major cause of the epidemic which occurred during the first half of the year 1941. From the spring of 1941 (March-May), when it reached

the peak of its prevalence and was the cause of 185 cases of scarlet fever and accounted for 67.3 per cent of all cultures isolated from these cases, it gradually decreased in importance until in the winter of 1941-42 (December-February) it represented only 13.6 per cent of all cultures isolated. Concurrently with its decrease, a number of other types became more prominent; types 2 and 4 showed a temporary rise in importance in the autumn of 1941 while types 6 and 19(17) were predominant during the winter (December 1941-February 1942).

Type 14 occurred in small numbers throughout the period of observation but never became a predominant strain.

In figure 2 are shown the monthly incidences of the type 6 and type 19(17) cases in order to draw attention to an important observation in the epidemiology of scarlet fever.

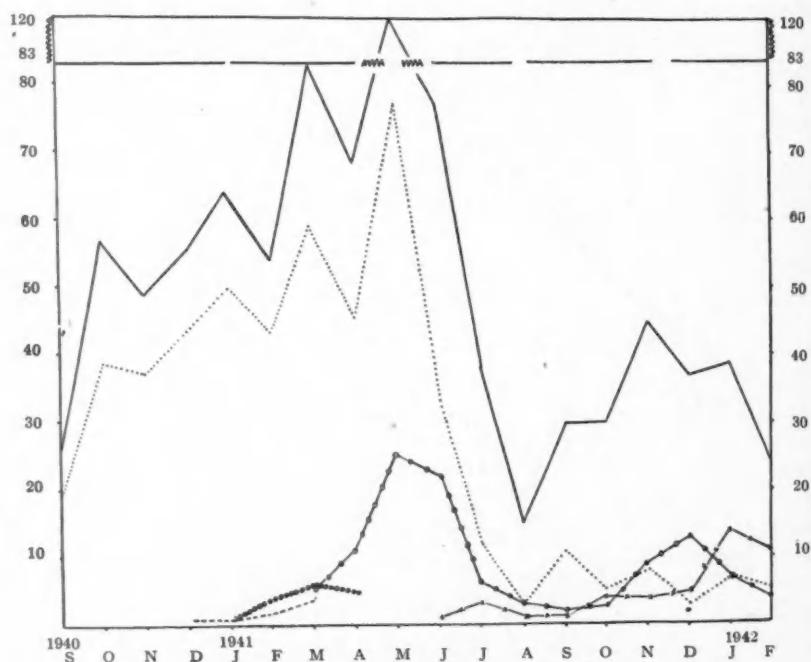


Figure 2. Showing the total number of cases of scarlet fever admitted to hospital, and the number occurring each month due to three common serologic types of haemolytic streptococcus.

Type 3 ..... Type 6 x—x—x—x

Type 19(17) o—o—o—o

Type 6 (Armed Forces) ——— Type 19(17) (Forces) ooooooooooooo

Total number of admissions. ———

During the first six months of this study no case due to type 19(17) was observed among the resident civil population. The first civilian cases occurred in March 1941, but during that month and the two preceding months, eleven

cases of scarlet fever due to this type were reported among members of the armed services stationed in the Ottawa district. The first recorded case was an air-cadet who had been transferred from Toronto the day previous to his admission to the hospital in Ottawa. Type 19(17) was known to be a common type in Toronto and was isolated by the author from several cultures taken from members of the Armed Forces in the Toronto district. Simultaneously, December 1940 to January 1941, there occurred an epidemic of scarlet fever in Halifax, and this same type 19(17) was found to be the predominant type among the cultures examined.

The source of the type 6 cases of scarlet fever in the civil population is indicated but the evidence is less convincing than that for the type 19(17) cases. Type 6 was not once found in the scarlet fever cases occurring among the civilian population of Ottawa during the first nine months of this investigation. The first type 6 case that was admitted to the hospital was a soldier recently transferred to Ottawa. This was in December 1940. During the next three months seven cases of type 6 scarlet fever were admitted to hospital, all of whom were service men stationed in Ottawa or the Ottawa district. The first civilian case did not appear until June 1941, several months after the first reported military case, and this was a little boy, seven years old, whose contact, so far as could be ascertained from the hospital records, showed no connection with the Armed Forces.

Considerable difficulty was encountered in the correct identification of the type referred to as 19(17). By agglutination tests Griffith types 17, 23 and 26 could not be differentiated. This is in agreement with the findings of Plummer (16), who used the same strains for making her typing sera as were used in this investigation. Pauli and Coburn (17), Rudd, White and Ward (12) and many others have not been able to distinguish between types 17 and 23 by agglutination tests. The particular strain 19(17) referred to above gave good agglutination with our 17, 23, 26 sera. This was confirmed by Dr. Frieda Fraser at Connaught Laboratories, Toronto. Dr. Alice Evans typed it by the Griffith slide agglutination method as a clear-cut type 23 (with Griffith's culture Barts. 102). Dr. Lancefield, however, using her M-precipitin test, typed this strain as type 19. With her M-typing sera and also with sera prepared by the author against Lancefield's J17D and S24 cultures, a sharp precipitin test was obtained with type 19 and no precipitation with type 17. The strain appears to be identical with Coburn's strain R3, obtained from Dr. Lancefield as J17D, which similarly agglutinated 17, 26 sera. Dr. Lancefield in a personal communication stated that both of these strains J17D and S24 were identified by Dr. F. Griffith as type 19.

Our standard type 19 antiserum was prepared against Griffith's SF 73/4 strain, and gave good agglutination with its homologous culture, but failed completely to agglutinate the type 19 strains which were received from Dr. Lancefield (J17D and S24).

The two cultures reported in this paper as type 17 were quite distinct from the 19(17) strains. Besides agglutinating type 17 antiserum, these strains fermented mannite, whereas all 19(17) cultures failed to do this, which agrees

with the cultural classification of these types reported by Keogh and Simmons (14). Furthermore these type 17 cultures gave a strong precipitin test with type 17 M-antisera (Lancefield's J17E culture) but no precipitation with the type 19 antisera.

More work is needed to clear up these differences of opinion with regard to the typing of this strain. Inasmuch as it differed from the classical type 17 strains in its precipitin and fermentation reactions, it was decided to refer to it in this report as type 19(17).

*Serological Type of Haemolytic Streptococcus and its Relationship to Severity of the Disease*

Table 2 shows the relation between serologic type and the development of complications.

TABLE 2

SHOWING TYPES OF HAEMOLYTIC STREPTOCOCCI FOUND ON ADMISSION AND THE NUMBER OF CASES WHICH DEVELOPED COMPLICATIONS

Serologic Type	Number of Cases Admitted	Number Developing Complications	Complication Rate Per Cent
2 .....	58	29	50.0
3 .....	510	183	35.9
4 .....	72	21	29.1
6 .....	52	10	19.2
14 .....	30	11	36.6
19 (17) .....	136	44	32.3
1, 9, 11, 17, 25, ?, and cases with two types .....	35	16	45.7
No Group A Strep. isolated .....	64	23	35.9
Total... .....	957	337	35.2

Of the 957 cases admitted to hospital, 337 (35.2 per cent) developed complications. Complications occurred most frequently among the type 2 cases (50.0 per cent). The complication rates in the type 3, 14 and 19(17) cases were similar, viz., 35.9, 36.6 and 32.3 per cent respectively. The rate was slightly lower in the type 4 cases, 29.1 per cent, and lowest in the type 6 cases, only 19.2 per cent.

In the two groups represented by those cases due to a variety of types, and those in which no haemolytic streptococci were recovered, the complication rates were comparatively high, 45.7 and 35.9 per cent respectively.

#### DISCUSSION

The epidemiological survey of scarlet fever types of haemolytic streptococci in Ottawa has confirmed the findings of previous workers that, while scarlet fever is not due to any one or even a few particular serologic types of haemolytic streptococci, certain types tend to predominate in certain localities.

It has been suggested that an epidemic of scarlet fever is due to the introduction into that community of a new serologic type. The results of this investigation add strong support to this view. The introduction of two new types 6

and 19(17) into the community resulted in a relatively increased number of cases of scarlet fever due to these types.

Bradley (18), in a study of streptococcal disease in a closed boys' school, found that a type-specific epidemic tends to run its course through a community and to die out spontaneously. This appears to be the case with the type 3 epidemic of scarlet fever which is reported in this paper.

Only four cases yielded more than one type of haemolytic streptococcus on the admission swabs. While it is possible that others might have been missed, it supports the view that as a rule only one type of haemolytic streptococcus is involved in the individual case of scarlet fever.

The local types in order of their prevalence were 3, 19(17), 4, 2, 6, 11, 9, 1, 17 and 25. Plummer (16) found that the predominant scarlet fever types in Toronto were 1, 2, 3, 4 and 11. She reported types 6, 14 and 17(23, 26) as commonly found in non-scarlatinal infections. It is probable that her 17, 23, 26 strains were similar to our 19(17) strains. It is interesting to note that these were common scarlet fever types in Ottawa.

The attempt to associate a particular type of haemolytic streptococcus with the development of complications has yielded no definite conclusion. While the complication rate was highest in the type 2 cases (50 per cent) and lowest in the type 6 cases (19.2 per cent), these differences are not statistically significant. Furthermore, the effect of cross-infection in the production of complications is not taken into consideration.

The serological identification of haemolytic streptococci is still a difficult technical procedure. Cultural and sugar-fermentation tests are useful aids in type identification. Further study of the complex antigenic structure of the haemolytic streptococcus is necessary, as is indicated by the difficulty in identifying the common scarlatinal strain referred to in this paper as 19(17), a strain which by one method of testing was identified as type 17, 23, 26 and by another as type 19. Lancefield's recognition of two specific antigens—an M-precipitinogen and T-agglutinogen—may explain the discrepancies in the results of the two methods of testing (19, 20). This particular strain may contain the M-precipitinogen of type 19 and the T-agglutinogen of type 17, 23, 26.

During wartime, when there is considerable movement of troops about a country, the danger of spreading communicable disease is much increased and the control of these diseases becomes a major and difficult problem. The armed forces in the district of Ottawa probably introduced into the community at least one new type of haemolytic streptococcus which became epidemiologically significant.

#### CONCLUSIONS

1. From 957 cases of scarlet fever admitted to isolation hospital and representing 96.5 per cent of all reported cases of scarlet fever in Ottawa, between September 1940 and February 1942, Group A haemolytic streptococci were recovered from 893 (93.4 per cent).

2. Of 897 strains of haemolytic streptococci isolated from cases on admission to hospital 890 (99.2 per cent) were successfully typed.
3. Four cases yielded more than one serologic type of haemolytic streptococcus on the admission swabs.
4. Methods of typing are discussed, and a strain 19(17) is described which gives the agglutination reactions of Griffith's types 17, 23, 26 and the precipitin reaction of type 19.
5. The predominant serologic types were 3, 19(17), 4, 2, 6 and 14. Types 1, 9, 11, 17 and 25 were also isolated but together accounted for only 2.5 per cent of all strains studied.
6. The monthly and seasonal distribution of these serologic types is recorded and their epidemiological significance discussed.
7. The incidence of complications among the several types is reported. The complication rate was highest in the type 2 cases (50 per cent) and lowest in the type 6 cases (19.2 per cent).
8. The source of two types—6 and 19(17)—is suggested and the danger in wartime of spreading communicable disease by the movement of large bodies of young adults from one community to another is stressed.

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## Plumbing Legislation\*

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IT can be taken for granted that no challenge is likely to be offered to a consentaneity in respect to the need for legislation for the control of plumbing. We have become accustomed to these standards and to their advantages. Laws or rules which regulate plumbing, when properly prepared and effectively administered, possess numerous advantages. Primarily they are designed to protect the public, whether in private homes or in public places, but they go much further than this. They set up a standard of good practice, and are in this way a decided asset to the plumber himself. It is in procedures of this kind that progress is made, and that the public are able to receive the benefits of these advances.

Two factors are of first importance in a discussion of legislation; namely the contents or the requirements of the legislation, and secondly its enforcement or administration. It is essential to incorporate requirements which are feasible and which meet the needs of the situation. Unnecessary expense to the property owner should be avoided, and the code should be workable.

A set of rules is of minor value without enforcement provisions, and unfortunately this all too frequently occurs in municipalities. The necessity for well-trained, conscientious inspectors is paramount, and they can be effective only when adequately supported by the administration responsible to the citizens.

It seems apposite therefore that we should not overlook these two considerations when dealing with legislation for plumbing in this country.

### *Changes Effected by the War*

At this time all are conscious of the fact that changes may be needed from the standards in vogue in peace-time. This is a condition which every one hopes may be transitory. There is no thought but that some of these changes may be retained, especially if they can be shown to enure to the benefit of the public.

The necessity for conservation leaves no choice but to make changes where possible. This necessity also brings us face to face with the problem of carefully scrutinizing the standards which have been set up in the past. Were these requirements more extravagant than were justified, and if so they should be modified? If changes in the standards are likely to result in any danger to health or to the rightful use of the property, the requirements should be restored as quickly as conditions will permit. It sometimes takes abnormal situations such as this to bring about needed reforms.

\*An address given at a meeting of the Association of Plumbing Inspectors of Ontario held in London in October, 1942.

There is no thought at this time of dealing with those conditions which may result from war changes, but rather is it intended to confine the discussion to general principles.

#### *Present Legislation*

The legislation which is now in operation, or at least was before the outbreak of war, is confined to the provincial and to municipal fields. Ontario conditions may be taken as typical. Since municipalities have no power to legislate unless authority is granted by the province, it is necessary to be familiar with the procedure which obtains in this province. Two acts apply in particular to municipal by-laws—The Municipal Act and The Public Health Act.

#### *The Public Health Act*

In The Public Health Act a limited number of clauses pertaining to plumbing are found in Schedule B, and are thus in force in every municipality in the province unless otherwise amended. These sections are by no means intended to constitute a plumbing code, but they do contain some essential requirements and in this way serve a specific purpose.

Probably the most important feature of the Public Health Act is that it offers a challenge or an opportunity for the municipality to pass its own by-laws in keeping with local requirements. These, adopted as amendments to Schedule B, require the approval of the Provincial Department of Health.

#### *Municipal By-Laws*

A question which naturally arises is whether municipalities are passing by-laws to control plumbing to the extent that they should. They have the authority, but whether they always recognize the need for this is uncertain. A survey of the municipalities in Ontario has revealed that a large percentage exercise no special supervision over plumbing installations. As a result of this they leave the public to make what arrangements they can with the plumber or the man who may set himself up as a plumber. This is not meeting the obligations imposed upon a municipal government.

#### *Model By-Laws*

Over a period of years there have been a number of model by-laws prepared for the guidance of municipalities and others charged with the task of preparing legislation for local needs. These codes serve a useful purpose, but it is seldom possible to make such a by-law entirely suitable to meet all the needs of a local unit.

In Ontario reference might be made to two of these so-called model codes. For some years the Department of Health has made available a guide which has been used extensively by municipalities for the purpose in which it was intended. The more recent model code is that prepared by the National Research Council, and known as the National Building Code. This has been prepared by a committee, and with the advice of a goodly number of persons. It may be recognized

as representing good practice, but since it is intended for all Canada it cannot be expected to suit the specific needs of all municipalities. It is like other codes in that it will require a number of alterations before adoption by municipalities to suit their local needs.

In the United States several groups have been engaged in the preparation of model plumbing codes over a period of years. These efforts are to be encouraged in that they tend to modernize the views of those who are intimately associated with this field. From all of these there is an opportunity to learn from others and to bring about a mutual exchange of viewpoints.

#### *Objectives in Legislation*

In dealing with plumbing legislation it is necessary to keep clearly in mind what our objectives should be. In this way the road to the goal is likely to be less difficult.

In this, it seems desirable to stress that these codes are for municipal use, and they must be administered by these municipalities. Model codes may be drafted by various groups, but in the end it is the municipal administration that must adopt and enforce them. One objective ought to be therefore to facilitate the adoption of such codes as can be satisfactory to local needs. From the information now available it is apparent that there is much work to be done in this.

Likewise it will be obvious that in these codes every precaution must be observed to protect public health. Not all features of plumbing are directly related to health protection, but there are a number of factors which must be carefully scrutinized, particularly those which deal with cross-connections and back-siphonage. The public expects the municipality, and rightly so, to protect their interests in health. This is something which must not be jeopardized regardless of other requirements.

There will be in all plumbing systems a considerable variation in the quality of the materials used, and in the expected efficiency of the resulting system. Cost must enter into this, and it is not always easy to draw the line between what should be permitted and what should be rejected, especially when lifetime of the installation is probably one of the major distinctions. The purchaser of a house or a plumbing installation is in no way qualified to pass judgment on this, and he must depend on the inspector to protect his interests. The owner will want an efficient installation at the lowest possible cost. The inspector will, in part at least, be meeting his obligation if he makes clear to the owner what he can expect from that which he is purchasing. Of course, when a building is resold the new owners are not so fortunate.

Proper qualification of the inspecting personnel is essential in the administration of any plumbing code. This should be a strong objective in a project of this nature. It is possible that enough facilities are not available now to aid the inspector in his task. Courses of instruction and meetings of this kind can be most helpful.

The responsibility of the plumber making the installation is a major one,

and there should be means to ensure that he meets his obligation. Smaller municipalities are in no position to pass on the qualifications of those engaged in this work. It becomes the responsibility for some provincial or national body to assume this duty. Local boards would then be unnecessary for determining the qualification of any workman.

#### *Equipment and Workmanship*

The details which should be covered in a municipal plumbing code are extensive, and there is no thought of discussing these separately. Suffice it to say that it will be necessary to specify the supplies and equipment which may be used, as well as the quality of the workmanship. These have all been thoroughly listed in the various codes, even though they may not all agree in some details.

#### *By Whom Should By-Laws Be Administered?*

The procedure adopted for the administration of plumbing codes varies in different centres. Two general set-ups are found. In one, the local Board of Health assumes full control of the inspections and appoints its own inspectors for this purpose. In the other, the administration comes under the municipal engineer's office. Both of these have their advantages and disadvantages. There is likely to be an inclination in any municipality to favour and to retain that method which has been in vogue for some time.

It is not easy or helpful to generalize in a matter of this kind, because so much depends on local circumstances. There are successful types of each. The problem is not complicated in the large centres as here there is usually a well-administered engineering department, and the health department is large enough to engage full-time inspectors. Where full-time inspectors are employed, it does not matter a great deal in which department of the municipal field this work comes. Co-operation between the two will be needed in either case.

In small towns there is at least a health officer, although there may be no permanent engineering branch. It is logical under those circumstances to ask the health officer to direct the control of plumbing. This is a special field and men familiar with the work must be obtained to make the inspections.

#### *Qualification of Plumbers*

The success of plumbing legislation must be linked in no small measure to the competency of the plumbers. Many by-laws refer to this requirement, and to the efforts made by the municipality to determine the qualifications of the men who will be doing this work. These qualifications may be different in the various places, and it is unfortunate that no national clearing house is recognized which would tend to pass on these qualifications, and thereby set up uniform requirements in all centres, as is done in the case of heating engineers.

#### *Repairs to Old Installations*

Most municipal by-laws deal chiefly with new plumbing installations. If the owner wishes to make alterations to his system he is, of course, expected to

comply with the code in force at that time. Few, if any, provide for periodic inspections of plumbing installations to determine their safety and general fitness for use. While difficulties might be anticipated in carrying out this procedure in private homes, that objection need not materialize for public places in which these facilities are in use by the public, and which under such circumstances must involve some risk. Water departments are empowered by provincial legislation to examine facilities in all premises, but the same does not apply to plumbing, unless it be under the general Public Health Act. This is scarcely sufficient to meet the need, and consideration should be given to regular examinations in these places.

#### *Changes through War*

A number of changes have been instituted in plumbing by Dominion orders-in-council. Municipalities will be desirous of doing everything possible to meet war requirements, wherever it is feasible to effect economy in metal without endangering health and safety. Careful consideration is called for before these changes are made, and in spite of the urgency of the moment these safety factors should be weighted thoroughly first.

This naturally raises the whole question of the need for carefully reviewing our plumbing codes. Have these in the past been more generous in supplies than was really justified? If so, these changes should be made not just for war purposes, but to persist after the war. In the choice of materials there is the question of lifetime and general satisfaction to the user. It is feasible under these conditions to adopt temporarily, materials which will have an expected shorter lifetime. This condition might be altered immediately after the war needs are satisfied. Whatever is done calls for careful re-examination of our whole viewpoint on what is essential and in what way economical changes can be made for temporary and permanent application.

#### *Revising Old By-Laws*

The needs in plumbing change like other municipal requirements and it is essential that plumbing legislation should be periodically revised in order to keep it up to date.

#### *A National Code*

In the past the main effort has been directed to having municipalities adopt codes for their own use. The larger centres do this, but the facts reveal that in the smaller centres no thought is given to this. The only way the need can be met in these places is to have a provincial or national code which will serve as minimum standards, and which can be amended to provide for local needs. This system has been adopted in some provinces and in some states. If carefully prepared and administered, it can be most beneficial. An attempt to follow this procedure in Ontario was made a number of years ago, but the necessary legislation was not adopted.

While the objective in such legislation is highly desirable, its administration

is not easy. Where no qualified inspectors are available locally, the expense of inspection by the province becomes onerous. This is particularly so in the rural areas where there is a large potential field in the future. Means for overcoming these difficulties call for serious consideration.

#### *Plumbing in Dominion Buildings*

Considerable confusion has resulted in some centres in respect to the standards adopted for plumbing in Dominion projects. This is particularly true for Wartime Housing. These houses have been built in many municipalities, some with well-established plumbing codes, and others with no control at all. The question which has to be faced is whether the Dominion in this work should follow the code in force in each place, and thus vary its standard from place to place, or adopt its own uniform standards to apply to all. The latter practice has prevailed.

Two points are at issue in this: first, can the municipality compel the Dominion Government, through Wartime Housing, to follow the local plumbing code in the same manner as it would a private citizen; and, second, are the standards used by the Dominion satisfactory and safe for use?

The question of Dominion jurisdiction over local municipalities is not clearly defined, but it can be taken for granted that a municipality has little opportunity of compelling the Dominion to follow any code other than its own. If there were any serious question of legal rights, it is presumed that an order-in-council would soon be passed under the sweeping powers attributed to the government under the Wartime Measures Act.

The code used by the Dominion in these houses cannot be claimed to be objectionable when it is considered that the houses are intended to be temporary, and when there is a need for uniformity in the different projects. Since municipal codes vary in such matters as main house-traps, it is not surprising that the Dominion has not shown any great tendency to meet them all. This again shows the need for better standardization of our municipal codes so that we can all agree on the more essential points at least.

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### MENINGOCOCCAL INFECTION

PHYSICIANS and medical officers of health are familiar with meningococcus meningitis. From the earliest clinical description by Vieusseux of the disease as it appeared among soldiers in barracks and during the years following the identification of the meningococcus by Weichselbaum in 1887, the clinical picture of meningococcal infection has been that of meningitis. Although Gwyn in 1899 and Salomon in 1902 drew attention to a meningococcal septicaemia without meningeal symptoms, it was not until this war that attention was drawn to the frequency of the occurrence of meningococcal blood-stream infection. A contribution to the knowledge of such blood-stream infections, with or without subsequent meningitis, has been made from a Canadian Military Hospital in England.\*

The authors report a series of 26 patients suffering from meningococcal infection admitted to hospital during the period July 1940 to June 1941 inclusive. Of these, 11 did not have meningitis on admission—though one case subsequently developed it—but had meningococcal septicaemia. The opportunity was afforded to observe the course of infection in these patients and to compare their histories with those of meningitic cases seen in the same body of troops at the same time. The cases were sporadic, occurring in every month of the year. The findings are presented in two groups, the group without meningitis and the group with meningitis. The ameningitic group consisted of 11 patients admitted to hospital under a variety of diagnoses, including influenza, arthritis, erythema nodosum and rheumatism. In 10 of the 11 cases the diagnosis was proven by successful culture of the meningococcus from the patient's blood. Of the symptoms, localized muscle pain—present in 10 of the 11 patients—was of particular interest. It was of sufficient severity to form the chief complaint of 5 of the patients. The calf muscles were most commonly affected. Localized joint pain, aggravated by movement, occurred in 8 of the patients and was a chief complaint in 3. Like the localized muscle pain, its onset was abrupt and associated with symptoms of infection and frequently with a crop of skin lesions.

\*Major R. C. Dickson, Major N. E. McKinnon, Captain D. Magner and Captain N. B. McGillivray, Divisions of Medicine and Pathology, No. 15 Canadian General Hospital, R.C.A.M.C., *The Lancet*, 1941, Nov. 22, p. 631.

The pain usually disappeared in a few days, only to recur in the same or other joints. Skin lesions, "spots," occurred at some time during their illness in all the patients except one. These spots appeared suddenly in crops of a few or dozens, most commonly on the limbs and trunk. Their occurrence coincided with, or closely followed, the onset or recurrence of fever and general symptoms of infection. The lesions were painful and tender, varying in size from 5 to 35 mm. in diameter. Remissions with complete freedom from symptoms and signs and lasting from days to several weeks were a striking feature of the condition. Treatment with sulphapyridine resulted in complete recovery. In one case the diagnosis was not made and consequently treatment was not instituted until the disease had been present for three months. One case was not given chemotherapy and appeared to make a spontaneous recovery apart from some residual joint lesions. In view of later observations the "apparent" recovery may have been a prolonged remission. One case was not given sulphapyridine until meningitis developed after a remission of three weeks.

The authors state that the fact that the number of cases of ameningitic meningococcal septicaemia approached the number of meningitic cases in this series strongly supports Heinle's statement that "meningococcic septicaemia can no longer be regarded as a rare disease." In one area where familiarity with the condition has led to early diagnosis the ameningitic cases have outnumbered the meningitic cases. The occurrence of skin lesions and localized muscle pain during the premeningitic phase of meningitic cases is strong if not conclusive evidence that the premeningitic illness was really due to meningococcal septicaemia. Nine of the sixteen cases of meningitis gave a history of premeningitic illness varying from one day to three months. The symptoms and signs were identical with those in the cases of proven meningococcal septicaemia. More of the ameningitic cases might have developed meningitis, like the one case, had the infection not been interrupted before that incident. There is no question that in Canada cases of meningococcal septicaemia are occurring and are undiagnosed. They are considered to be cases of arthritis and of obscure undiagnosed fevers. In view of the rapid recovery which is effected by appropriate chemotherapy, and the consequent elimination of the potential hazard of meningitis in the patient, it is essential that physicians and medical officers of health should be familiar with this newer knowledge of meningococcal infection.

## PUBLIC HEALTH ADMINISTRATION

### INAUGURATION OF A COURSE LEADING TO THE DIPLOMA IN INDUSTRIAL HYGIENE, UNIVERSITY OF TORONTO

A COMPREHENSIVE educational program in the field of industrial hygiene must provide effective instruction for the worker, for the representatives of management and labour, and for those who render professional services to industry, particularly the industrial hygienist and physician. This program may best be implemented by providing the necessary special training for the medical personnel dealing with industry, whether they be employed by industry or by governmental organizations created to advise industry in matters pertaining to health. If the training is adequate and directed along suitable lines, such professional personnel should be well fitted not only to promote health in industry but also to shoulder the responsibility for the health education of lay colleagues and industrial workers.

The ordinary medical course provides very little time for instruction in industrial hygiene. Teaching in the other branches of the medical art used in connection with industrial health supervision is relatively adequate. It is imperative that the industrial hygienist and physician alike be given special training providing factual material on the effects of environment on human physiology. They must understand the methods used for the control of the various factors in the environment and the manner in which such control may be used to promote the health of the industrial worker. Ventilation, lighting, sanitation, noise control and other similar subjects must be considered and a point of view established which will enable medical personnel effectively to apply their knowledge to the health problems presented by industry. A new course in industrial hygiene being offered by the University of Toronto, has been designed for the instruction of medical graduates

preparing for posts in industry or in governmental departments dealing with health in industry. The material covered will be of value both to the hygienist and to the industrial physician.

The course, which will be inaugurated on August 16th, leads to a Diploma in Industrial Hygiene (D.I.H.) and is open to graduates in medicine of any university recognized for this purpose by the Senate of the University of Toronto. Candidates for the Diploma are required to complete the course of study outlined in the comprehensive curriculum which extends over one winter session, normally of eight months, and one session of three months for the purpose of acquiring field experience in industrial hygiene. The winter session consists of two terms and, as a war emergency measure, has been reduced to six months. This compression of the course has been brought about without any reduction in the working-time involved.

Courses of instruction are provided by the departments of Medicine, Surgery, Hygiene and Preventive Medicine, and Pharmacology of the Faculty of Medicine and by the departments of Physiological Hygiene and Epidemiology of the School of Hygiene. A variety of subjects is covered, including bacteriology and immunology, epidemiology and biometrics, physiological and industrial hygiene, nutrition, toxicology, public health chemistry, public health administration and education, sanitation and material in the fields of medicine and surgery considered related to the work of the industrial hygienist and physician.

The field-training period of three months may be spent under the supervision of a recognized Department of Health or industrial organization having an adequate program of indus-

trial hygiene. Candidates previously engaged in work in industrial health or hygiene, who submit satisfactory evidence of experience, may make application for exemption from field training.

Candidates who hold the Diploma in Public Health, as granted by a university recognized for this purpose by the Senate of the University of Toronto, may make application for exemption from the subjects already covered. The D.I.H. curriculum is so designed that such candidates need only attend classes for one (normally four months but at present three months) of the two winter terms.

After the completion of the required courses of study, written and practical examinations will be held. Candidates who pass the examinations and who satisfactorily complete the field work will be granted the Diploma in Industrial Hygiene. This diploma is the first and, at present, the only specific recognition available for post-graduate work in the field of industrial health or hygiene.

It is generally recognized that health supervision in industry on this continent has always been inadequate. This defect is in evidence at the present time. More physicians, specially trained in industrial hygiene and related subjects, are needed. The course described, and offered by the University of Toronto, is being provided to assist the medical profession in carrying out their duties toward the industrial population of the country. It is hoped that this effort in post-graduate education in industrial hygiene will yield useful results during the war. Such training facilities should also play an important part in providing personnel to undertake the comprehensive program of health supervision in industry which will inevitably be established in Canada in years to come.

#### PUBLIC HEALTH WORKERS IN THE KING'S BIRTHDAY HONOURS LIST

A NUMBER of public health workers were included in the King's Birthday

Honours List. Dr. J. J. Heagerty, Director of the Public Health Services, Department of Pensions and National Health, was made a Companion, Imperial Service Order (I.S.O.). The other honours included:

*Officer, Order of the British Empire (O.B.E.):* Dr. P. S. Campbell, Chief Health Officer, Department of Public Health of Nova Scotia, Halifax; Dr. R. D. Defries, Director, School of Hygiene and Connaught Laboratories, University of Toronto; and Dr. G. B. Reed, Professor of Bacteriology, Queen's University.

*Member, Order of the British Empire (M.B.E.):* Miss Marjorie Bell, Director of the Visiting Homemakers Association, Toronto; Dr. W. K. Colbeck, Welland, Ontario; Dr. P. A. Creelman, Medical Superintendent and Secretary of the Provincial Sanatorium Commission, Charlottetown, Prince Edward Island; Mr. John Foggie, Chief Sanitary Inspector, Department of Health and Public Welfare of Manitoba, Winnipeg; Miss Marion Lindeburgh, Director, School for Graduate Nurses, McGill University, Montreal; Dr. F. C. Middleton, Secretary of the Saskatchewan Cancer Commission, Regina; Dr. A. Marguerite Swan, Director, Division of Health Education, Department of Health and Public Welfare of Manitoba, Winnipeg; and Miss Luce Tremblay, Public Health Nurse, Ministry of Health of the Province of Quebec, Chicoutimi.

#### PROFESSIONAL INSTITUTE MEDALS FOR 1943

THE Professional Institute Medals, awarded annually by the Professional Institute of the Civil Service of Canada for outstanding contributions by members of the professional services of the Dominion or Provincial Governments, were awarded this year to Lloyd Montgomery Pidgeon, M.Sc., Ph.D., of the National Research Council, Ottawa; and to Squadron Leader A. Hardisty Sellers, B.A., M.D., D.P.H., formerly of the Department of Health of Ontario

and now with the R.C.A.F. (Medical Branch).

Dr. Pidgeon received the medal in recognition of his having developed an economic and efficient process for obtaining magnesium in practically unlimited quantities from dolomite deposits. During the war magnesium is of special importance in aircraft construction and in the manufacture of incendiary bombs. Dr. Pidgeon's process promises also to be of great importance for peacetime economy.

Squadron Leader A. Hardisty Sel-

lers was awarded the medal for his extensive studies of hospitalization which "will be of invaluable assistance in ascertaining hospital costs in any scheme of health insurance and also in planning the hospitalization needs of the future". These studies necessitated the investigation of the records of more than 60,000 hospital admissions in the Province of Ontario. Squadron Leader Sellers is the first Provincial civil servant to receive the award.

## BOOKS AND REPORTS

**Hospital Discharge Study.** *An analysis of 576,623 patients discharged from hospitals in New York City in 1933.* By Neva R. Deardorff, Ph.D., and Marta Fraenkel, M.D. Volume I, *Hospitals and Hospital Patients in New York City.* Published and distributed by the Welfare Council of New York City (44 East 23rd Street), 1943. 209 pages. Volume I, \$1.00 (U.S. funds); subscription for all three volumes, \$2.00.

In view of the obvious need for morbidity data in assessing more accurately the problem of serious illnesses in any community and the facilities needed for their control or treatment, and in estimating the costs of medical care, it is surprising that so little has as yet been done with the great fund of information on serious illnesses which general hospitals and allied institutions for the care of the sick can provide.

In January, 1934, the Research Bureau of the Welfare Council of New York City, with the assistance of State and City Work Relief Authorities and the Work Projects Administration, initiated a comprehensive hospital morbidity study based on the hospital records of 576,623 patients discharged from 113 public and voluntary hospitals in New York City in 1933. The entire undertaking was handled by hand tabulation—a stupendous task, the suc-

cessful conclusion of which calls for commendation.

The findings of this study are to be published in three volumes. This volume (Number I) presents analyses of general data on the patients—age, sex, diagnosis, length of stay in hospital, condition on discharge, etc. In Volume II will be presented detailed analyses of data on patients with selected diagnoses under the title "Hospitalized Illness in New York City". The third volume, "Problems of Morbidity Reporting", will deal with the experience in hospital morbidity recording gained by the New York study and will incorporate suggestions for a routine community reporting system.

Since the study concerns itself with discharges, data on the incidence of disease are not included. This is an admitted limitation but, while some criticism will be offered on this score, it is of minor importance. No undertaking of this magnitude could hope to achieve all the desired objectives.

Among the important contributions to public health made by the authors of this work is demonstration of the fact that it is possible to produce hospital morbidity statistics on a large scale.

*The Hospital Discharge Study* is the first large morbidity study of its kind on record. The data cover a full calendar year and, therefore, provide

valuable information on the volume and causes of hospitalization not previously available. Evidence is presented demonstrating a longer average stay in hospital for the same type of condition in municipal than in voluntary hospitals. This finding was also reflected in a similar study undertaken in the Province of Ontario covering approximately 60,000 hospital discharges during 1936. An unexpected finding, not borne out by Canadian data, however, was the fact that socio-economic status of the patient was apparently "irrelevant as to length of stay".

*The Hospital Discharge Study* will stand as an important landmark in morbidity statistics. It places on record information very much needed and will provide a valuable stimulus to the extension of this type of effort elsewhere. In this, a considerable degree of satisfaction should be taken by the authors. Congratulations are due to all who contributed to the successful conclusion of this work.

*A. H. Sellers*

**Fundamentals of Psychiatry.** By Edward A. Strecker, M.D., Sc.D., F.A.C.P. Montreal: J. B. Lippincott Company, 1942. 213 pages. \$3.75.

DR. STRECKER, who has already contributed a sound study of mental hygiene entitled "Discovering Ourselves", has designed a handbook in compact form to provide a practical knowledge of psychiatry which can be utilized by medical students and general practitioners in meeting everyday problems.

In *Fundamentals of Psychiatry* the reader is impressed with the fact that never before has there been such a need for knowledge and skill in psychiatry both in civilian and military life; and never before has psychiatry had so much to offer in relieving the ills of mankind. It is pointed out that there is a need for the use of psychiatry as a social as well as medical science in the everyday practice of medicine.

Emphasizing the advantage of the closer union between internal medicine

and psychiatry, the author calls attention to the "basic principles upon which psychomatic medicine now rests: That in health and disease, each emotional reaction, mild or severe, has immediate repercussions in every tissue and cell of the body; conversely, each somatic reaction, physiologic or pathologic, mild and transient, or severe and permanent, at once has emotional reverberations. Internal medicine was interested but rather dubious until there had been made the clinical demonstration of the dynamic significance of anxiety in the genesis of structural pathology, notably peptic ulcer. The last formidable barrier between internal medicine and psychiatry has been demolished."

Likewise "Psychiatrists are viewing somatic perspectives with renewed interest. All physicians are turning eagerly to psychiatry for lessons which will give them a better understanding of so-called functional symptoms and teach them psychiatric technics of management. It is now clearly comprehended that an illness, *any* illness, even though it may appear to be restricted to the physical in its clinical expression, nevertheless always contains a mental component which must be appreciated and treated."

Beginning with a discussion of the importance and opportunities of psychiatry, including its historical background, the scope of this work is best presented by the chapter titles: "Etiology," "Classification of Mental Diseases," "Methods of Examination and Symptoms," "Mental Stage of the Psychiatric Examination and Formulation of Findings," "Organic Psychoses," "Toxic Psychoses," "Functional Psychoses and Psychoneuroses," "Defect Reaction Types," and "The Psychiatry of the War."

A good index adds to the usefulness of this book, which in its brevity and conciseness will help to meet the need of those with limited time for study. A second printing includes a new chapter on psychiatric nursing and a glossary of psychiatric terms.

*A. E. Wells*

**Mental Illness: A Guide for the Family.** By Edith M. Stern in collaboration with Samuel W. Hamilton, M.D. New York: The Commonwealth Fund, 1942. 134 pages. \$1.00 (U.S. funds).

THIS is a book which health and social workers will welcome as an important aid in meeting one of their most difficult problems—that of advising the relatives of persons who are mentally ill. It was during the course of seeking information for articles on mental hygiene that Mrs. Stern became aware of the lack of public information and interest everywhere concerning mental disease and disorders. On the other hand, it was only too evident how much needless distress people endured because of ignorance and fear, when a member of the family suffered a mental breakdown.

With the guidance of Dr. Samuel W. Hamilton, Mrs. Stern has made available to the layman essential information that is both authoritative and easily understood. In a simple and direct way, the problems of mental illness are dealt with according to the general course of experience in caring for the mentally ill. Beginning with the need for a healthy attitude toward mental illness, each step in the care, treatment, and after care is clearly explained to the anxious and bewildered family.

The chapters on the reception, medical treatment and the daily life of the patient in hospitals for mental diseases, will do much to dispel the fear and dread that most families have of hospital care. Of particular importance is the advice given to them concerning the relationship of the patient's family to the hospital, including his need for wholesome family contacts. What to do when the patient returns home, and the aid he requires to help him regain his place in the family and community are well outlined. A discussion on the permanence of recovery and the need for preventive measures completes a book which has long been needed. A good glossary of terms used

in connection with mental illness adds to its value for the lay reader.

A. E. Wells

**Public Health Statistics.** By Marguerite F. Hall, M.A., Ph.D. New York and London: Paul B. Hoeber, Inc., 1942. 408 pages with 41 illustrations. \$5.50 (U.S. funds).

ACCORDING to the preface, "Public Health Statistics is intended for use as a text for a basic course in public health statistics and as reference material in health departments. It lays the groundwork for an understanding of the collection, organization, and interpretation of data pertinent to public health and vital statistics." Dr. Hall, who is Assistant Professor of Public Health Statistics in the School of Public Health of the University of Michigan, appears to understand the needs and interests of those working in the public health field. In twenty-one chapters she presents essential data concerning tabular and graphical presentation, population data, vital events, rates, ratios and index numbers, construction of life tables, measures of variability, relationship and trend, prerequisites to the application of statistical methods, etc. The order in which the subject-matter, examples and explanations are presented is a very pleasing one. A list of important formulae is presented for reference in an appendix, while another useful feature is its twenty-eight page index. Health officers as well as statisticians should find this book useful.

Mary A. Ross

**The People Against Tuberculosis.** The story of the Christmas Seal, by Leigh Mitchell Hodges. New York: National Tuberculosis Association, 1942. 54 pages. \$1.00 (U. S. funds).

As the subtitle indicates, this is the story of the use of the Christmas Seals to raise funds for the campaign against tuberculosis. It is also a fascinating story in words and pictures of pioneers in anti-tuberculosis work, and of the National Tuberculosis Association in

its struggle against one of the oldest disease-enemies of mankind. Into this has been woven an absorbing account of the scientists who paved the way for preventive and treatment measures; and of the laymen whose devoted efforts provided the means for carrying plans into action. In starting the Christmas Seal sale in Philadelphia in 1907, Miss Emily Bissell and her co-workers, with the aid of the press, began a movement which has not only provided financial support for anti-tuberculosis services, but has also awakened the public to the realization of their need for knowledge and participation in the campaign against tuberculosis.

In a foreword, Dr. Bruce H. Douglas, President, and Dr. Kendall Emerson, Managing Director of the National Tuberculosis Association, point to the areas in which tuberculosis still needs to be uncovered and eradicated—areas which have become sharply focused by military and industrial needs for human health and endurance. They also call attention to the force of popular knowledge in arousing public opinion and action, and to the great importance of "routine tasks" in the day-to-day activities of community workers.

This little volume as a tribute to pioneer workers will give encouragement and inspiration to the professional health workers of today. As an attractive source of information about modern tuberculosis services, it should have a place in community and school libraries.

*A. E. Wells*

#### **An Evaluation of Dental Health Literature.**

*By Vern D. Irwin, D.D.S., M.P.H., and Netta W. Wilson, M.A.; approved by the American Association of Public Health Dentists. St. Paul, Minn.: Bruce Publishing Company, 1942. 58 pages. \$0.50 (U.S. funds).*

THE authors present in this booklet a critical analysis of the current printed

materials generally used by dentists, teachers, and health workers to disseminate information about dental health and hygiene. This analysis is the result of an investigation to determine the authenticity and the effectiveness of dental health literature in view of the increased public interest in, and the rapid development of dental health education.

Inaccuracies in dental health are classified into ten main groups: dental anatomy and physiology, caries, children's teeth, dental care, diet, general health in relation to dental health, home care of the teeth, malocclusion and orthodontics, dental pathology and other caries, and prenatal dental care—with a corresponding comment as to the known facts about each statement. In addition to the finding of inaccurate information, misstatements are dealt with in like manner by pointing out contradictory, misleading and impractical statements which are considered likely to confuse or lead to false interpretation.

Statements too technical for the layman or presented in substandard English, as well as inconsistencies in terminology, were also found in enough instances to call attention to them as faults that should be avoided in the preparation of dental health education materials.

The section on the adaptation of dental health literature is of particular interest and value in that it points out the basic principles of effective teaching methods as well as materials; and offers constructive suggestions in the preparation and selection of dental health publications for various groups, with particular reference to children, adolescents, adults (general), parents, teachers, and nurses.

The importance of this study lies in the fact that it meets a real need not heretofore met; and it should therefore prove to be a useful guide for those engaged in dental health education and other health fields.

*A. E. Wells*

## INDUSTRIAL HYGIENE ABSTRACTS

### Some Problems of the War Worker

IN Great Britain the recent immigration into industry from all walks of life has been more widespread than at any time in history. Equally significant has been the transference of large numbers of workers from one trade to a more essential one. This transition, particularly noticeable in the case of women, has presented many problems.

In this article the author, who is a doctor in a large aircraft-component factory in Essex, presents his observations as based on experience during the interviewing and examining of employees. Their ages ranged from 14 to 65. When considering "new labour" two questions arise:

- (a) Is the potential employee physically and mentally capable of carrying out the required work?
- (b) Is he or she, although willing and anxious to work, likely to become discontented and restless through some factor other than physical incapacity?

The author discusses problems in their relation to the following groups of entrants: (1) those showing average physical fitness and a proper sense of responsibility and keenness; (2) those suffering from some minor physical defect, but who are anxious to work and are capable of performing many types of work with safety and efficiency; (3) those who by reason of some major physical defect or deformity are obviously unfit for any kind of factory work; (4) those with no physical disability or with some minor defect of no practical significance, but who exhibit fear, reluctance or antagonism. This group—mostly women—embodies most of the psychological problems encountered in labour selection.

His experience led him to the following conclusions:

1. A preliminary medical and psychological examination of all new entrants

is desirable, not only with regard to fitness for work but also as a basis upon which to determine the validity of subsequent appeals for transfer or release.

2. The majority of release claims based on grounds of alleged physical incapability have their real origin in such matters as financial dissatisfaction, travelling difficulties, or domestic problems.

3. Many of the problems arising from the unsettled worker could have been eliminated by a more thoughtful and personal interview in the labour department.

4. In factories where there exists no medical service for guidance, allocation of labour appears to be governed more by the requirements of the moment than by suitability of physique or temperament.

5. In all but a small percentage of cases some occupation can be found in which the new entrant can work with safety and efficiency.

*Occupational Psychology, January, 1943, p. 34.*

### Criteria for the Evaluation of Nutrition Experience in Industry

EXTRAVAGANT claims are continually being advanced for the nutritional value of various products and at times it is difficult to separate established facts from unestablished claims. The decision reached a year ago by a combined committee of the Council on Foods and Nutrition and of the Council on Industrial Health that there was no justification for the indiscriminate use of vitamin supplements in industry has not been refuted. Experiments along this line are now in progress. The problems of nutrition in industry are varied and there is considerable discrepancy between reports on various aspects of the subject. There is, however, evidence that there is much room for improvement in the nutritional status of the wage earner.

There are two scientific aspects to

the problem of nutrition in industry: the determination of new facts through research on the effect of specific nutrients or groups of nutrients on the health and productivity of workers, and the application of known principles of diet to the war workers.

In this article the author mentions some standards that will help evaluate the experience of others and that might help an industrial physician when undertaking a nutritional investigation. A research program on nutrition in industry requires, in order to be satisfactory, a competent investigator, materials and equipment necessary for the problem to be studied, a careful appraisal of the diet on which the subjects are living, together with a consideration of the requirements for special age groups and the establishment of suitable controls.

The measurement of effects is a subject of much controversy. Many leaders in the field of nutrition believe that improved nutrition can lead to increased production, cut down spoilage, improve general efficiency, reduce absenteeism and diminish accidents. The author of this article considers these criteria measures of human performance and, as such, they are influenced by many factors other than diet. He maintains that the effects of any procedures for improved nutrition should be noted in the worker's body and their investigation is therefore the role of the physician. That of measuring and interpreting psychologic and other factors belongs to workers in other fields.

He stresses the fact that while only those who have the training, facilities and adequate time can satisfactorily undertake an experimental investigation of this type, it is nevertheless possible for every industrial plant to contribute to the national nutritional program. He refers to the availability of help and advice from trained nutritionists in every section of the country, to the possible improvement of lunchroom facilities, and to educational material which can be provided to help

workmen and their families guide their food selection along scientific lines.

Franklin C. Bing, J.A.M.A., 1943, 121: 813.

### **Immunization for Industrial Workers: Problems of Organization and Administration**

As a result of rapid developments in the field of industrial health, and particularly as a wartime measure, it is now necessary to organize and administer in industry, certain preventive medical functions formerly carried on only in connection with private practice and in clinics and health services associated with public agencies.

The functions considered in this article are those of immunization through the use of serums and vaccines. In addition to the various prophylactic measures, the author discusses the place in any efficient plan for the immunization of industrial workers, of each of the following professional groups: (a) private practitioners of medicine, (b) industrial physicians, (c) public health authorities and (d) industrial health committees of state and county medical societies.

He considers the private physician the key person in the program, as 85 per cent of medical service to industry is supplied by private practitioners. The industrial physician should function as a deputy health officer. In many communities the local public health authorities provide the necessary services; advisory leadership should come from industrial health committees of state and county medical societies.

An immunization program should give attention to:

1. *Smallpox vaccination.* The present military mobility and industrial expansion are responsible for enough cases of smallpox to serve as focal points for epidemics.

2. *Antityphoid inoculation.* This should be promoted chiefly among workers whose occupation requires considerable travel and contact with an outdoor rural environment.

3. *Immunization against tetanus.* The

use of tetanus toxoid is particularly necessary for those whose work definitely involves contamination of wounds with dirt or soil which may contain the bacillus or spores of tetanus.

4. *Immunization against upper respiratory infections.* The author advocates the promotion by industrial management of the use of protective vaccines or serums against the diseases of the upper respiratory system, only if and when their value has been as scientifically established and medically accepted as that of vaccination against smallpox, typhoid and tetanus.

Leverett D. Bristol, J.A.M.A., 1943, 121: 816.

#### Exposure to Fumes from Hot Nitroglycerin

IN answer to a request, information is given relative to the toxicity of hot nitroglycerin, particularly as it might relate to the occurrence of a spinal-cord lesion.

At low temperatures such as 50°C. the product of nitroglycerin evaporation is nitroglycerin. At higher temperatures nitrous oxides also will be produced, their amount increasing directly with the temperature. Correspondingly there is a diminution in the proportion of nitroglycerin. The explosion temperature approximates 250°C.

Nitrous oxides and nitroglycerin

have dissimilar actions but both are highly toxic. An early characteristic effect of the action of nitrous gases is the formation of methemoglobin. Continued exposure leads to massive pulmonary edema. Nitroglycerin in liquid form is readily absorbable through the mucous membranes. When inhaled it is dangerous: as little as 2 mg. may cause severe poisoning. In chronic poisoning, blood-cell destruction is prominent. In acute poisoning the foremost feature is a violent headache; commoner symptoms are visual disturbance, flushed face, tachycardia, nausea, vomiting, lowered blood pressure and excitability even to the point of mania.

The occurrence of a chronic condition on the order of a spinal-cord lesion is possible as a result of multiple cord haemorrhages known to occur in nitroglycerin poisoning.

There are chemical antidotes for acute nitroglycerin poisoning but real industrial prevention must be practised. Exposure can be controlled through the elimination of cutaneous contact and of opportunity for vapor inhalation. Alcoholic intake should be rigidly avoided. As high temperatures increase the dangers involved, the temperature should be kept as low as is compatible with industrial requirement.

J.A.M.A., 1943, 121: 552.

